MAY • 1959

FIREMEN

VOLUME 26, NUMBER 5, COPYRIGHT 1959 NATIONAL FIRE PROTECTION ASSOCIATION PRINTED IN U. S. A.

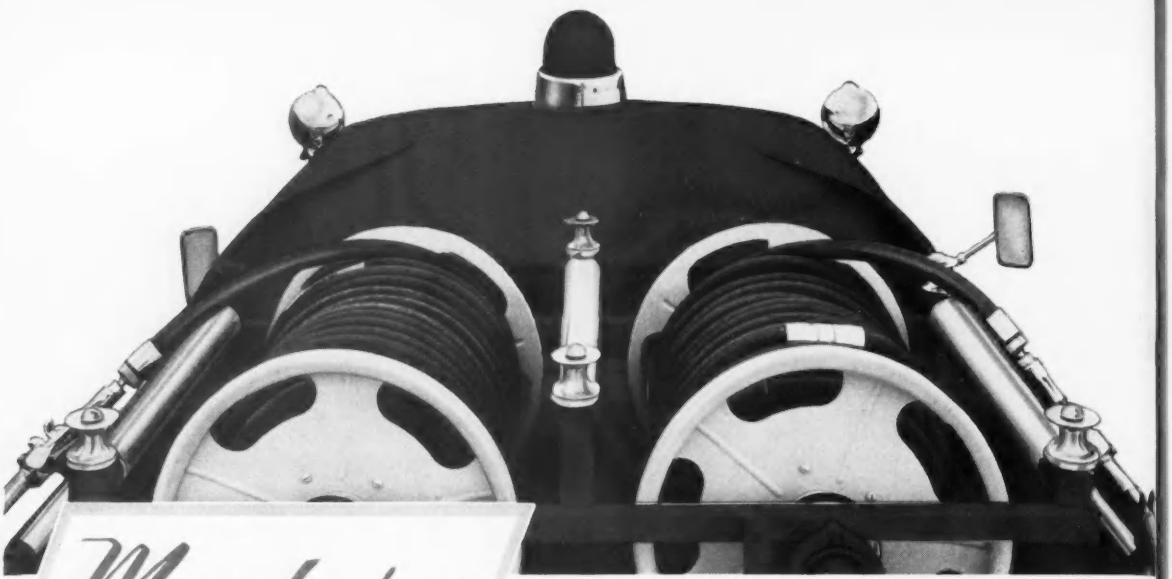
Bottling Plant Fire, Clarksburg, West Virginia — *see page 7*

NAL FIRE
ECTION
CIATION

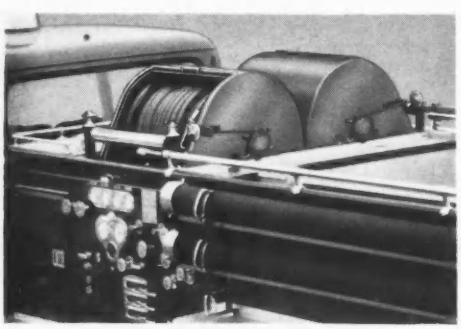
63rd year

TWO FIRES — 15 ALARMS! › › › › › › › › Page 8

WATER SUPPLY PROBLEMS AT RECENT FIRES › Page 12



Modern HOSE REEL FEATURES ON American Fire Trucks OFFER MANY ADVANTAGES



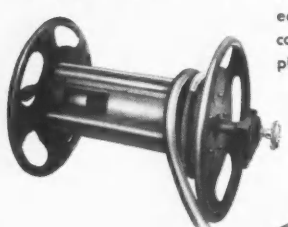
From bumper to rear step, American Fire Trucks are packed with features firemen like—features like these superb AFA-built hose reels. See how every detail helps give you faster operation, smoother performance and greater convenience than any other reel built.

- **Electric Rewind*.** Heavy duty silent V-belt drive is flexible and won't damage equipment or personnel if hose or nozzle become tangled when rewinding.
- One standard heavy-duty starter motor drives *both* reels. Motor can be serviced locally.
- Reel brakes can be adjusted from the ground to prevent back lash.
- Chrome plated brass guide rollers and deep groove spools, and leak proof *ball bearing* stuffing boxes are standard.

Controls on both sides of truck operate reels. Rewinds operate only one at a time to prevent battery overload.

Sliding covers* protect hose reels and fog guns from freezing.

Collapsible, *self-adjusting* spring steel drum louvers flatten when pressure expands hose. Prevents damage to hose and couplings.



Special convex reel wheels with *wide* rolled edges protect hose. Hose comes *straight* from coupling—*not* sharply bent.

*Optional features at extra cost.

American pioneered the first successful electric rewind hose reel and has continued to increase the fire-fighting advantages of these units.

You can choose hose reels with electric, hand-crank or hand-operated rewinds in keeping with American's policy of giving you a choice of chassis, choice of midship or front-mounted pump, and choice of other features to suit *your* community's needs.

Contact your nearest American representative soon!

American

AMERICAN FIRE APPARATUS CO.

FIRE APPARATUS CO. "Always Pioneering with Better Engineering"

Main Office: Main Street Rd., Battle Creek, Mich. Plants at: BATTLE CREEK, MICH., MARSHALLTOWN, IA., STRATFORD, ONT.

SPECIFY

Powhatan

"SUPER-FORGE"

DROP FORGED BRASS COUPLINGS

★ LIGHTWEIGHT

★ NON-CORROSIVE

★ DURABLE

Three Lug "Sensible Lugs"

on Male and Female with Higbee Indicators

Available in 1½ and 2½ inch sizes

POWHATAN BRASS & IRON WORKS

RANSON, WEST VIRGINIA

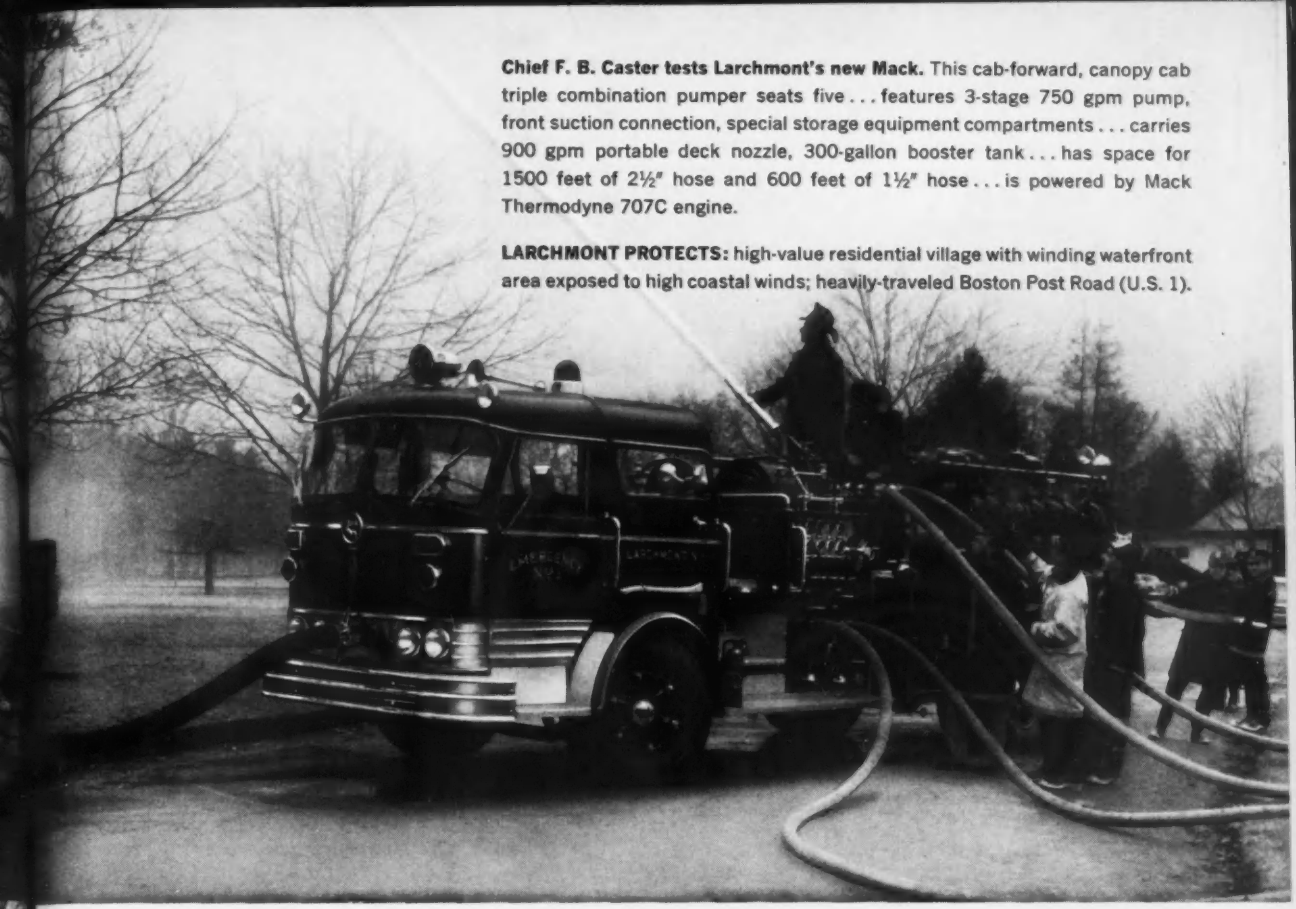
In The Same Location Since 1892

Chief A. W. Leggat drills Mount Vernon's new Mack. Rated at 1250 gpm, it's a semi-cab, conventional triple combination pumper that features rear step suction intake, a 1250 gpm portable deck nozzle and a 300-gallon booster tank . . . has space for 1000 feet of 1½″ hose and 1800 feet of 2½″ hose . . . is powered by Mack Thermodyne 707C engine.

MT. VERNON PROTECTS: high population-density city including many large apartment houses; widespread industrial area; one of East Coast's largest gasoline and oil depots.

Engineered for every firefighting need. From the wide selection of custom-built Mack models you can have cab-forward or standard units...with Mack-built engines, including the famous 276 hp Mack Thermodyne® 707C (which develops 640 foot-pounds of torque at 1400 rpm) . . . with conventional or automatic transmissions . . . with standard, two-stage pump or the new Uni-Control Hi-Stage pump . . . with air or hydraulic braking systems . . . with the gear ratios and built-in extras that you need.

MACK FIRST NAME FOR



Chief F. B. Caster tests Larchmont's new Mack. This cab-forward, canopy cab triple combination pumper seats five . . . features 3-stage 750 gpm pump, front suction connection, special storage equipment compartments . . . carries 900 gpm portable deck nozzle, 300-gallon booster tank . . . has space for 1500 feet of 2½" hose and 600 feet of 1½" hose . . . is powered by Mack Thermodyne 707C engine.

LARCHMONT PROTECTS: high-value residential village with winding waterfront area exposed to high coastal winds; heavily-traveled Boston Post Road (U.S. 1).

MACK FIRE APPARATUS rings the bell in WESTCHESTER

A tremendous surge of home and plant construction has intensified the need for dependable fire protection in New York State's famous Westchester County . . . has placed a premium on absolutely top-performing equipment—one reason why many of its forward-looking communities are putting Mack apparatus into service.

Equally important, there's the growing awareness of a nation-wide swing to Macks—sparked by a growing conviction that Mack performance is in a class by itself. That's because Mack controls the performance of its finished fire apparatus by making—and testing—more of its own major components than anyone else in the industry . . . and to far higher standards. Ask Mack to show you models that are engineered right, designed right, *built* right for your department. Mack Fire Apparatus, Allentown, Pennsylvania. In Canada: Mack Trucks of Canada, Ltd.

You'll find late model Mack apparatus in these Westchester Departments:

Briarcliff Manor
Hastings on Hudson
Larchmont
Mamaroneck (Village)
Millwood
Mount Vernon
Peekskill
Portchester

FIRE APPARATUS

COMPLETE LINE OF PUMPERS—500 to 1250 GPM . . . SQUAD AND HOSE WAGONS . . . AERIALS 65′ to 100′ . . . COMBINATION LADDER TRUCKS

Join the N.F.P.A. as a public service to your community.

put your cart before THE SOURCE

. . . of over 1200 Fire Department Items!

Today a supermarket stock of over 1200 different items of fire department equipment is available from a single source—Fyr-Fyter! This means all municipal, industrial and commercial fire department needs can be met from Fyr-Fyter's complete line of approved fire hose, Wooster brass goods, nozzles and couplings, portable fire extinguishers, clothing, pumps, ladders, warning and signaling devices, first-aid kits, masks, breathing apparatus, fire alarms, etc.

You benefit many ways from "Single Source Shopping" through Fyr-Fyter! First, you talk to only one salesman—a trained representative who thoroughly understands firemen's problems and whose knowledge and experience qualify him to offer counsel. Your Fyr-Fyter representative can make recommendations without prejudice since he offers every type equipment existing. By placing one order and paying one bill, you eliminate the complicated paperwork involved in dealing with many suppliers.

Moreover, Fyr-Fyter offers prompt and efficient servicing on any fire protection products, including hydrostatic pressure and burst testing for lengths of hose. Most important, every Fyr-Fyter item will prove to be dependable, high-quality equipment over long years of service, because its integrity is backed by a reputable, responsible company enjoying national respect for 43 years!

Write for free catalog describing 1200 items today!

Fyr-Fyter®

products of **THE FYR-FYTER COMPANY**

ATLANTIC COAST REGIONAL OFFICE
P. O. Box 750, Newark 1, New Jersey

CENTRAL STATES REGIONAL OFFICE
221 Crane St., Dayton 2, Ohio

PACIFIC COAST REGIONAL OFFICE
132-140 Hawthorne St., San Francisco 7, Calif.

BRANCHES: Atlanta, Baltimore, Boston, Chicago, Dallas, Dayton, Detroit, Los Angeles, New York, Newark, Philadelphia, Pittsburgh, Portland, Rochester, San Francisco, Seattle, Toronto (Ontario)
Representatives and Distributors in all principal cities.

FIREMEN

A monthly magazine published for the fire service members of the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Massachusetts.

Volume 26 • Number 5

Warren Y. Kimball . . . . . *Editor*
Paul R. Lyons . . . . . *Associate Editor*
Henry S. Gere . . . . . *Advertising Manager*
Dianne Kofman . . . . . *Editorial Assistant*
Shirley Tobey . . . . . *Fire Service Department*
Virginia Stiles . . . . . *Advertising Department*
Marion Stuart . . . . . *Circulation*

Highlights of this Issue

	Page
Two Fires — 15 Alarms!	8
Mutual Aid in Turkey	11
Water Supply Problems at Recent Fires	12
Liquefied Petroleum Gases — What They Are, What They Do	14
Fire Prevention Awards	24
Aircraft Rescue and Fire Fighting Chart	26
Important Fire School Dates	30
Buying New Equipment?	34
Index to Advertisers	34

Fire in a soft drink bottling plant on the evening of January 10 got too much of a start for the Clarksburg, West Virginia Fire Department. The 2-story brick wood frame building had just been closed for the weekend. An occupant in the adjacent building noticed smoke and telephoned an alarm. Six engine companies and a ladder company responded, and, as mutual aid was put into effect, fire departments from four other communities within five miles were called. The fire, however, which started on the second floor, had burned for about twenty minutes before discovery, then broke through the roof shortly after the first companies arrived. Eventually, it involved the entire building, as shown on this month's cover. In addition, five trucks and two automobiles were destroyed and a falling wall caused some damage to an exposed building. Total loss was estimated at $144,000. (*Cover photo by Clarksburg Exponent-Telegram*)

●

As announced last month, the new edition of the *NFPA Inspection Manual* is now available. For fire departments, this has been one of the most popular of the many books published by the Association, because it has been written and edited for the man who makes inspections in the field. The pocket-size manual has thirty-six chapters each giving substantial information on a particular topic, so that an inspector by referring to the manual, can exercise sound judgment on fire protection requirements. There are numerous illustrations and many references to technical standards or other books providing more detailed information on the particular topic.

The *NFPA Inspection Manual* has also been useful to instructors of firemen's training programs. In Ontario, for example, it is used as the basic text in a course on inspection practices, and for years, students completing that course have been awarded a complimentary copy of the manual by the Province. For detailed description of this new edition, see the advertisement on page 28 of this issue.

●

Fire departments in New York, New Jersey, Pennsylvania and surrounding areas are urged to send one or more of their members to the NFPA Annual Meeting in Atlantic City, June 1–5. As mentioned frequently in this magazine, the meeting brings together some of the best specialists in the field of fire protection, reporting and discussing topics of interest to the fire service, to industry and to the general public. A digest of the program appears on pages 22 and 23 of this issue and a complete program will be in the May issue of NFPA *Fire News*.

For years the annual meetings have featured special sessions for showing up-to-date motion picture films on fire protection, fire prevention and fire control. Prior to each meeting, films are carefully studied by the NFPA staff and selection is made of the best films for the annual meeting audience. This year an exceptionally good hour and a half motion picture program has been arranged, including at least three films of special value to fire departments. Fire department personnel who attend the general and technical sessions of the annual meeting certainly ought to take in this Thursday evening film session. Admission is free and the films will be instructive and entertaining.

Photo at left shows placement and use of master stream appliances at Walnut and Second Streets fires. An estimated 15,000 gpm is being directed into the involved structures.

(Right) At rear of same building heavy streams prevent spread of fire to high value occupancies along Granite Street. Note narrow street, hose line to roof monitor.

(All photos by Philadelphia Fire Department.)

TWO R
15 AI

Pre-planning, by-passing of companies and good use of heavy stream equipment were major factors in handling these difficult fires in Philadelphia's downtown district.

(Based on a report from Philadelphia's Deputy Commissioner of Fire and Chief of Department, George E. Hink.)

SHORTLY after midnight on March 3, two major fires started near the dock area of Philadelphia's high value district. They threatened closely grouped, multi-story buildings near the new Independence Mall project and the Society Hill section of downtown Philadelphia, and caused a combined loss estimated at $750,000. Before control was established, one-third of the manpower from Chief George E. Hink's Philadelphia Fire Department was called into action, first for an eight-alarm response then a seven-alarm response. Within a five-hour period, 85 per cent of the department's apparatus was on the move either for fire attack or for covering assignments. Despite this activity, there were no vehicle accidents and only four fire fighters suffered injury (all minor).

According to a report from Chief Hink, the twin fires had the potential of starting a conflagration as severe as the Fisherman's Wharf fire that wiped out a major portion of downtown Philadelphia in 1897. He credits the department's pre-planning program (described in the May, 1956, issue of FIREMEN magazine) as a major factor in the fire attack operations that resulted in control of these extremely dangerous situations.

The First Fire

The emergencies started on March 3, at 12:08 A.M., when a man noticed smoke and flame pouring from the five-story Marine Equipment and Supply Company building on Walnut Street. He immediately ran and pulled the first box alarm from the corner of Walnut and Second Streets. This area is on the fringe of the fruit and produce center of Philadelphia, not far from the Delaware River dock area. The involved five-story brick, wood-joisted building was in the center of a block of multi-story buildings housing wool and textile brokerages, maritime suppliers and fruit and produce firms. Close exposures were on all sides with a five-story mercantile building directly adjacent on the west side of the involved structure. On the east side was a row of four- and five-story buildings.

First responding companies under the command of Battalion Chief David Gregory found the five-story building completely involved in fire, with flames and heat threatening the adjoining building.

Walnut Street in this section is very narrow and while the adjacent buildings were a primary exposure problem, the row of multi-story buildings across the street also became a major exposure hazard as flames were now bursting across the street. The same threat existed in the rear where Granite Street, only 15 ft. wide, provided no protection against fire spread. Here also was a row of four- and five-story mercantile buildings.

Chief Hink believes in the adage "Don't guess, send for help immediately." Accordingly, the magnitude of

this fire called for the maximum response that could be spared. A sequence of eight alarms brought, altogether, 250 men and 60 pieces of apparatus. Pumpers, 85- and 100-ft. aerial ladder trucks, high pressure engine companies and two fire boats came into action. It is a fundamental of the pre-planning program that fire boats respond on all Second Street boxes in the high value districts. This permits immediate augmentation of the existing water supply. In this case, each fire boat laid multiple 3½-in. lines from the Delaware River directly to the fire area which was only one and a half blocks away.

Practically all engine companies responding had portable deluge guns. Once these heavy stream appliances were set up in operating position, it became possible for Chief Hink to release some of the companies and return them to service.

Actually, less than an hour after the initial alarm was struck, many of the fire companies had either returned to service or were in the process of doing so. In this

Conditions at Second and South Streets fire upon arrival of first responding companies. Fire is already bursting through roof and entire building, so protection of exposures is fundamental problem.

RES —

ARMS!

short span of time, however, the first fire had completely destroyed the involved building with loss estimated at three hundred to five hundred thousand dollars. However, the quick positioning and use of heavy stream equipment and apparatus kept the fire to the building of origin and gave vital protection to the exposed structures.

The Second Fire

At 3:30 A.M. another intense fire broke out in a five-story furniture manufacturing plant less than one-half mile away from the first fire. A patrolman, setting up street barricades to re-route traffic from the Second and Walnut Streets area, saw smoke pouring from the building and immediately ran to pull a street box alarm. Again, responding fire fighters found the building completely involved. Subsequent alarms sounded quickly brought a seven-alarm assignment to the fire area. Here, the prime exposures were directly to the east where there were several rows of multi-story dwellings adjacent to the fire building. The immediate problem was to get master stream appliances into service quickly to provide a water curtain for the buildings on this side. Exposures on the north and south sides of the building included three- and four-story structures housing various commercial firms.

The fact that Second Street is very wide in this area gave an advantage to fire fighters in spotting apparatus and getting streams into action. However, hand lines and heavy stream appliances had to be hoisted or otherwise carried to roof tops to provide effective attack and protection for exposures. Despite these difficulties, this fire also was confined principally to the building of origin.

Communications and Command

Philadelphia's modern communications and command vehicles, Car 500 and Car 1000, were both in service at each fire. These mobile command centers, plus efficient work by the Electrical Bureau, permitted good contact with the fire alarm room at City Hall. Thus, command personnel at the fires kept in touch with the movement of fire companies, the nature and conditions at other working fires, and other operations not related to the emergency areas. The command cars also provided on-the-scene communications through public address systems and "walkie-talkie" sets.

When major fires occur in this city, the Deputy Chief of the Division not concerned with the existing fire operation, responds on the third alarm to the Fire Alarm Headquarters. Under his direction, companies are relocated to give the best protection to areas vacated by apparatus responding to alarms.

The by-pass or skip system has been used in Philadelphia since 1954. This means that all companies

Philadelphia fire fighters wear dust and smoke goggles during fire alarm response. This practical measure has resulted in a low incidence of eye injuries.

Philadelphia's "silent firemen," portable monitors fixed in position, are pouring a water curtain on the prime exposures of the Second and South Streets fire. Note cornice at upper right center about to collapse, something all fire fighters should consider when working around such buildings. A short time after this picture was taken, most of this cornice dropped to the sidewalk.

stationed near a box or fire location do not necessarily respond. Certain ones remain in quarters to give protection for "stripped" areas. This reduces the need for wholesale relocation of companies, and minimizes accident potential and the possibility of other areas being unprotected.

Since 1952 it has been the policy of the fire department to sound extra alarms promptly in order to bring adequate equipment and personnel to extinguish the fire and return companies to service as rapidly as possible.

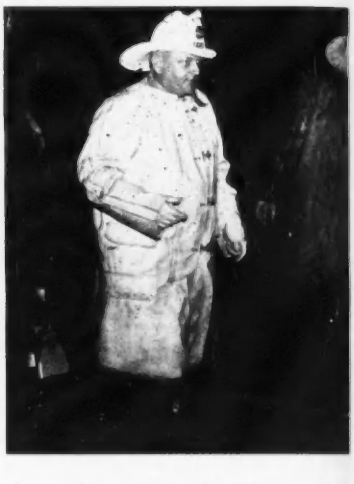
It is worth mentioning that, during the period of these two major fires, three other working box alarms were covered promptly and adequately.

At daybreak, deck and portable guns are still pouring water on involved buildings. Cornice on building mentioned at top of page (directly in center here) has collapsed.

Apparatus and Equipment

The department's use of heavy stream appliances certainly proved valuable. At the height of the first fire (at Second and Walnut Streets), portable deluge guns surrounded the involved building. Deck guns and the large volume nozzles on ladder pipes also were used effectively and the fire was contained within the building of origin, with the exception of partial ignition of the loft and roof of a building on the west side. Fifteen portable deluge guns and two deck guns on the Walnut Street side quenched the threat of fire spread to a row of high value occupancies on the north side. Although many portable deluge guns were left in action at the Second and Walnut Streets fire when companies were returned to service, the department had plenty of these appliances left to cope with conditions at the second major fire (Second and South Streets). Here, once more, heavy stream equipment was a major factor in holding the fire to its building of origin.

The high pressure engine companies, many of which saw service at both fires, responded with the large hose and heavy equipment necessary for the application of large volumes of water. These companies were quickly returned to service after the heavy stream appliances were set in position.



Chief George E. Hink shown during fire fighting operations at one of the multiple-alarm blazes.

The fire department's metal 100-ft. Maxim-Magirus aerial ladders once again proved useful, for the narrowness of many of the streets in both fire areas prevented good use of other types of ladder trucks.

The Marine Division worked well with the land (high pressure engine) companies by laying multiple lines of 3½-in. hose from the 6,000 gpm fire boats to the fire areas at both operations. This Division's assistance was particularly evident at the Second and South Streets fire for many of the mains, still supplying water for the first fire, were using much of their rated output to feed pumpers and heavy stream appliances kept in service.

Safety Procedures, Appliances

The safety program of the Philadelphia Fire Department also proved effective during the emergencies. Despite the fact that 85 per cent of all department apparatus had moved during this period of emergency, no vehicle accidents occurred.

For a long time, the department has appreciated the

need for strict safety procedures during fire fighting operations, training sessions, and apparatus operation and maintenance. Lectures, written instructions and other means stress the need for constant safety.

During the fires on March 3 this instruction and the adopted safe procedures undoubtedly helped to keep injuries to a minimum. It is mandatory for fire fighters to wear protective boot insoles, smoke and dust goggles, self-contained breathing apparatus and protective clothing during fire fighting operations.

Throughout his report, Chief Hink gave high praise to the fire fighters of his department. He also said "The enthusiasm, morale and *esprit de corps* of Philadelphia's fire fighters during the critical hours of the early morning of March 3 certainly was the determining factor in containing the two raging fires that threatened, for a time, to reach conflagration proportions. Much of the credit for personnel enthusiasm and high morale is due to Commissioner Frank L. McNamee. He has provided the best apparatus and equipment, technical and administrative knowledge, and improvements, with the ultimate aim of reducing, as much as is humanly possible, the incidence of fires, and, if fires do occur, effecting quick control and extinguishment practices."

Other Service Departments in Action

As reported in the May, 1956, issue of FIREMEN magazine, Philadelphia's practical disaster plan goes into operation on fourth-alarm. It provides for coordination of the ten service agencies in the city. These agencies send top command personnel into the fire areas following early appraisal of the situations. During the March 3 incidents, as mentioned earlier, the Electrical Bureau, under Chief Edgar Grim and other supervisory personnel, provided excellent communication services. Water Commissioner Samuel Baxter personally commanded engineers and emergency crews of the Water Department and provided immediate services where needed, resulting in continual maximum gallonage from the domestic and high pressure service mains in the area. A staff of doctors under the Chief of the city's medical services, Dr. Saverio Brunetti, was available to administer to the injured. The Automotive Services Division of the Department of Public Property had a number of mechanics at the scene. The Welfare Department and other emergency service departments had key personnel at the scene.

The Fire Department's corps of reserve firemen was much in evidence during both fires which provided excellent training for this civilian organization.

Under the personal command of Police Commissioner Thomas Gibbons and his able deputies, police officers controlled spectators and traffic which contributed to the overall efficient control of both major fire problems.

Finally, it should be noted that at no time during the emergency period was it necessary to use the department's recall system, because pre-planned procedures provided ample personnel, apparatus and equipment to cope with the emergencies at hand.

MUTUAL AID IN TURKEY

FOR the past few years, Alfred M. "Hap" Grunwell, retired battalion chief of the Washington, D. C., Fire Department, has been serving as fire chief at the Incirlik Air Base near Adana, Turkey. Here, with a small crew of American fire fighters, he has administered a 74-man fire department, 60 of which are Turkish fire fighters. Apparatus for this base fire department includes 0-10 and 0-11A crash fire trucks, three pumpers, a 1,000-gallon tank truck, and a rescue truck.

Recently, an important mutual aid agreement was signed between Chief Grunwell's department and the City of Adana Fire Department. Some 300 citizens from Adana and American military personnel attended the signing ceremony at Incirlik's fire house. Following this ceremony, the Turkish fire fighters of Chief Grunwell's department put on a crash fire fighting and rescue demonstration.

"Hap" reports that he worked almost a year with Chief Sahattin Tuzunalp of Adana to bring about this mutual aid agreement. The city's fire department includes eight pumpers, a hand-operated aerial ladder and a rescue truck, all of which protect this third largest city in Turkey which has a population of about 200,000. Buildings in the city range from sheet metal covered, wood frame shelters to modern, reinforced concrete, multi-storied buildings. There is also a number of earth-mortared stone buildings. In a number of areas, spaces between these structures are so narrow that a man cannot stretch his arms fully. This creates a severe problem of maneuverability for fire apparatus.

"Hap" Grunwell shown making a "thank you" speech when the mutual aid pact was signed at Incirlik Air Base.

Turkish Fire Chief Sahattin Tuzunalp signs the mutual aid agreement and crash rescue in fire protection for the city of Adana, Turkey. The signing took place recently at Incirlik Air Base between Adana and the air base fire department.

Water Supply Problems at Recent Fires

by Warren Y. Kimball, Editor, FIREMEN magazine,
and Manager, NFPA Fire Service Department

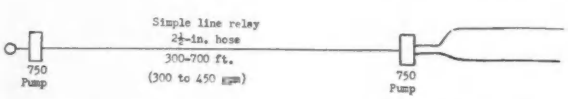
THERE have been several serious fires during which improper use of 2½-in. hose lines supplying pumpers, or use of a single 2½-in. line has unduly restricted the volume of water furnished to pumpers.

In a short pumper relay, for example less than 700 ft., a single 2½-in. line between pumpers will carry from 300 to 450 gpm, depending upon the pressure at the supply pump and the length of line. From this it can be seen that, to assure 600 gpm or more near the fire, at least two 2½-in. lines are needed between pumps. Three or more lines of large diameter hose should be used if a 1,000-gpm pump is to be supplied in a relay.

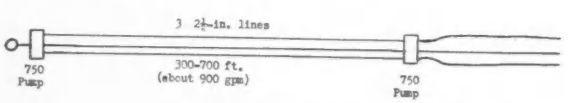
It should be remembered that in relay operations we must use at least two pumping engines to get streams from the engine near the fire, because the second pumper is merely adding pressure to water received from the pump at the source of supply.

As local conditions will vary, no hard and fast rule may be stated that will take the place of sound judgment on the part of the officer in charge. Nevertheless, we cannot escape the physical fact that to discharge a given quantity of water it is necessary to deliver that quantity to the pump at the fire. Where volume is wanted in a pumper relay, a minimum of two 2½-in. lines or one 3-in. line will be required and additional lines will supply more water at a given pump pressure.

Let's look at some layouts and see what they produce.



We are using 1,500-gpm pumping capacity to deliver less than 500 gpm through the single 2½-in. relay line.

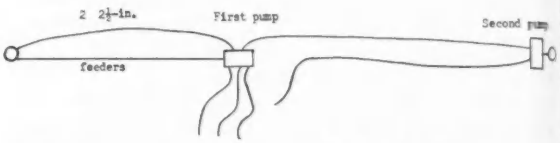


We are using 1,500-gpm pumping capacity to deliver about 900 gpm. If a larger pump was at the hydrant and the water was available, this layout could deliver well over 1,000 gpm.

In some situations the capacity of two pumpers can be used directly on the fire, without setting up a relay. This, of course, depends on the availability of hydrant or static water supply, and sufficient manpower to put the hose lines in action.

Now the question as to whether Method 2 or 3 is preferable depends upon many factors including manpower, ability to lay hose, adequate supply of hose, time involved in making layout and the importance of having the pump controls close to the fire. In general, unless each pumper has more than four men on duty best results may be obtained by a multiple line relay.

In some cases other layouts will work well. For example, the first pumper may lay two feeder lines from the nearest hydrant and go to work with preconnected lines. The second pumper lays two lines fire to hydrant, but one of its lines is used to supplement the supply to the first pump.



Good utilization of water and lines is accomplished by this method. Pump at fire gets good hydrant supply from two 2½-in. feeders and from single 2½-in. feeder from pump at another hydrant. Additional lines can be run from second pump for fire attack, if needed.

If the hydrants are any good this will provide better than 1,000 gpm delivered with two pumpers. We have the advantage of fast attack with the first unit which, when backed up by the supplemental pump line, will have a total of 750 to 1,000 gpm available. The second pump will be delivering over half of its flow to the first pump but can run additional lines later if water and manpower are available. In this operation the second pump provides the pressure needed for its own hand line which will give adequate volume in the supplemental line to the first pump. For example, No. 2's hand line requires 125 pounds pump pressure to supply a 1⅛-in. tip with 265 gpm at 50 pounds. With both lines about the same length the supplementary line would carry about one-third more water because it would not be required to supply the nozzle pressure.

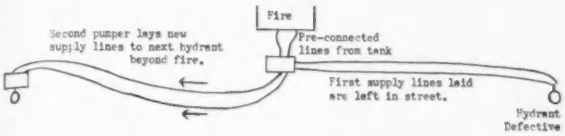
The question has been raised as to what happens when, after the layouts between pumps have been made, it is found that the hydrant is defective. This is an admitted possibility although one that will occur infrequently if hydrants are well maintained.

If there is only one hydrant available, the matter is serious regardless of the type of layout used. If there are other hydrants within reach of the hose on the apparatus, there are several possible courses of action. The correct action will depend upon conditions and the judgment of the man in charge.

First, the operator finding the defective hydrant will radio this fact to the pumper at the fire, and the officer in charge will be informed regarding the possible delay in getting water from the hydrant system. The officer in charge will know that he must hold the fire with the water tank for several minutes and must attempt to conserve water by judicious use of preconnected 1½-in. lines. If the fire is at all serious, he will call more apparatus and men at once knowing that by the time additional water is available the extra help may be needed, and it is well to have it on the way.

The operator of the pump at the defective hydrant should know where the next nearest hydrant is located.

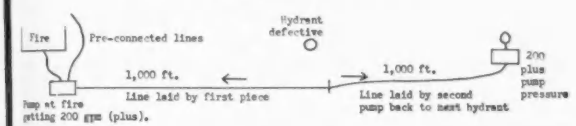
If it is beyond the fire he will leave the line or lines laid by the first pumper in the street, proceed to the fire and make a fire-to-hydrant lay from the first pump which is working from the tank. (Here is where the larger booster tanks in the 400 to 500-gallon range pay off.) The operation is shown below.


Fire
Second pumper lays new supply lines to next hydrant beyond fire.
Pre-connected lines from tank
First supply lines laid are left in street.
Hydrant Defective

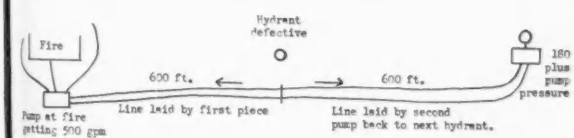
Pre-connected lines from booster tank are used on fire as fire-to-hydrant layout is made. Defective hydrant is simply bypassed and second pumper relays to pumper at the fire.

If the next nearest hydrant is further back away from the fire, he will connect the hose on his own apparatus to the line already laid and lay back to the next hydrant. Here is where it is important to know the spacing of hydrants. If he has enough hose he will lay two lines back to the next hydrant but if not he will lay a single line. If he has to reverse his lines, double male and double female couplings will be needed.

In the extreme case where two full hose loads are required to reach the fire from the next hydrant (as at a rural fire) the pump will operate in series at 200 to 225 pounds. This will deliver 200 gpm to the pump at the fire, which will supply at least two good 1½-in. lines. If the lines are short enough so that two lines can be pieced out between pumps, each line will be able to deliver from 200 to 250 gpm so that the pump at the fire will receive close to 500 gpm even though the lines are, for example, 1,000 ft. long.



While pump at the fire gets less water by this method of bypassing a defective hydrant, the relay assures that some water is delivered on the fire. Of course, if sufficient hose is available a multiple-line relay can be set up. In this case, pump at hydrant operates in series at 200 to 225 pounds and single feeder provides more than 200 gpm.



Double line relay is shown here, with pump at fire getting 500 gpm and supplying three hand lines of 1½-in. and 2½-in. hose.

The question also has been raised as to why, in a previous article, we showed only two lines between pumps when planning a capacity operation of 1,200 to 1,400 gpm. The two lines shown were the first two lines laid from a divided body to get into service. This would provide 700 to 900 gpm depending upon length of line. Once the pump was in operation and the relief valve or governor was set, the operator would stretch back another feeder using the one-man method of laying hose shown in the NFPA Hose and Ladder Manual. If additional water and pump capacity is available, he might stretch a fourth feeder line.

Needed — A Fire Department!

Once in a while the question is asked, "How much property do fire departments save?" Perhaps these pictures bring out what can happen when a fire department is not called soon enough or does not get into position quickly enough. In the top picture, the center building is pretty well involved but fire has not reached exposures. Note, however, in the second picture, both exposures are burning, particularly the one at left where radiant heat spread against the strong wind. A prompt alarm, adequate fire department response and proper use of good hose streams might have saved these exposures. (*Photos by Thomas J. O'Connor*)

Interested in Public Relations?

HOW many NFPA fire department members are active or interested in fire safety education and in general public relations work in the fire field?

Plans are now under discussion to expand the scope of the Public Relations Committee, to increase its usefulness to more NFPA members. Possible new activities are the development of special materials to serve such members, as well as sessions at NFPA meetings to exchange ideas and to hear experts in public relations and fire safety education.

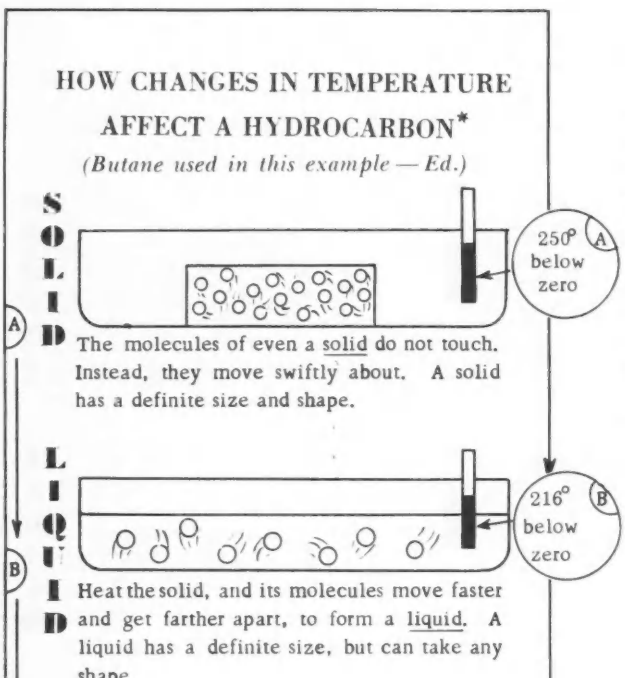
The committee program would cover a wide range of interests of value to members, for example, who are now in charge of fire department public relations and educational activities, handling industrial fire safety education, doing publicity or serving on a community fire prevention committee. All interested in such a program are urged to send their names to the NFPA Executive Office.

Changing Address?

SUBSCRIBERS to FIREMEN magazine who plan to change address should notify the NFPA Executive Office promptly so they won't miss any issues of the magazine. Fire fighters who receive the magazine through fire chiefs' or fire departments' membership should also include this information when they send notification of their new addresses.

LIQUEFIED PETROLEUM GASES — What They Are, What They Do

Part II of a Series (see box, opposite page)


HOW CHANGES IN TEMPERATURE AFFECT A HYDROCARBON*
(Butane used in this example — Ed.)
SOLID
250° below zero
A
The molecules of even a solid do not touch. Instead, they move swiftly about. A solid has a definite size and shape.
LIQUID
216° below zero
B
Heat the solid, and its molecules move faster and get farther apart, to form a liquid. A liquid has a definite size, but can take any shape.
GAS
32° above zero
C
Heat the liquid, and the molecules move fast enough and far enough to expand and form a gas. Gases have neither definite sizes nor shapes, can be pushed together or can expand.
LIQUID
31° above zero
D
By cooling, the gas can be formed into a liquid again. (Cool it further and it becomes a solid.)
* Temperatures given are approximately those applying to butane. They are in degrees Fahrenheit.

Meet the LP-Gases

SEVERAL hydrocarbons are included among the LP-Gases, but the two principal ones are butane and propane. Others, which may be mixed with butane and/or propane in relatively small amounts, include propylene, iso-butane, and the butylenes. In addition, any LP-Gas might also include small quantities of hydrocarbons such as methane or ethane which are not, strictly speaking, liquefied petroleum gases.[1]

The hydrocarbons known as LP-Gases all have a relatively small number of hydrogen and carbon atoms in each molecule. They have more such atoms than the "natural" gases, but fewer than the petroleum liquids and solids.

All of the hydrocarbons known as liquefied petroleum gases are similar in several ways:

1) They can be stored and transported as liquids as long as they are kept confined under appropriate pressure.
2) When the pressure is reduced, they change into gases at common outdoor temperatures.
3) They are all heavier than air when in gas form. It should be noted that despite this property, they will diffuse or disperse rapidly when released to the air.
4) They are tasteless and colorless. However, when LP-Gas in liquid form is released from a container it vaporizes almost immediately. This produces a cooling of the surrounding air and may cause water vapor in the air to condense, freeze, and become visible. In this way, an LP-Gas leak may be detected even though the gas itself is invisible. (Many gas leaks do not develop frost, so the serviceman must also use other means of detecting leaks.)
5) They are usually odorless as produced, and need the addition of an odorizing agent to warn of leaks.
6) When mixed with the proper proportions of air (which contains oxygen) they burn readily.
7) Under normal outdoor temperatures liquid LP-Gases expand rapidly into the form of gas when

[1]Except in the chemist's laboratory, it is rare for any one of these hydrocarbons to be found unmixed with one or more of the others. For practical purposes, an LP-Gas can be defined as any material which is composed for the most part of these hydrocarbons. Thus, when an LP-Gas company employee refers to propane, he actually is referring to a material which is for the most part propane, but may have other hydrocarbons present.

the pressure on the liquid is reduced sufficiently. At atmospheric pressure, one cubic foot of liquid propane, the amount that would be contained in a cube measuring one foot on each side, will generate enough gas to fill about 270 times as much space. (270 cubic feet)

8) LP-Gases, like most other liquids, will expand when heat is applied. This expansion will increase the volume of the liquid and the pressure in the container. Each LP-Gas container is designed and built to withstand the pressures encountered under normal conditions. As a safeguard against emergencies, it is provided with a safety relief device to prevent any hazardous increase in pressure in the event of exposure to fire.

9) LP-Gas vapor is nonpoisonous, but has a tendency to make a person drowsy if inhaled in sufficient quantities.

10) LP-Gases are capable of dissolving natural rubber and some petroleum products.

The LP-Gases differ from each other in some of their properties. These differences will be developed more fully in the material that follows.

Terms Used in Describing LP-Gas . . .

Because they can be either liquids or gases, the LP-Gases cannot be described in the same way that lumber is — by length, width, and thickness. But they can be described in other ways, to indicate: 1) how well they burn, 2) what pressures they produce at given temperatures, 3) how much they weigh for a given volume, 4) at what temperature they boil, and 5) how much air must be mixed with them for combustion to take place.

In his daily work, the LP-Gas company employee uses several terms which indicate the ways in which the liquefied petroleum gases are described. If he is to understand LP-Gas and its behavior, the employee must first have a clear idea of what each of the terms discussed below means.

. . . "Btu's"

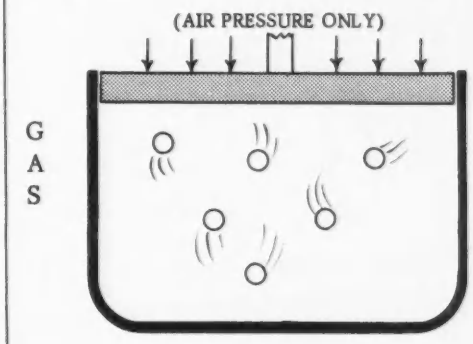
From the standpoint of the user, the most important aspect of LP-Gas is its ability to produce heat. Just as for other fuels, this ability is measured by a unit called a *British thermal unit* — or Btu. One *British thermal unit* is defined roughly as the amount of heat required to raise the temperature of one pound of water one degree Fahrenheit. For instance, if a fuel has a rating of 2,000 *Btu* per cubic foot of gas, it can raise the temperature of 100 pounds of water 20 degrees F. above the original temperature. Or, the same amount of this gas can increase the temperature of 20 pounds of water by 100 degrees F. The Btu rating is found by multiplying the number of pounds of water heated by the number of degrees F. in temperature increase. Thus a fuel which can raise the temperature of 300 pounds of water 10 degrees F. using only 1 cubic foot of gas would have a rating of 3,000 Btu's per cubic foot. (300 pounds multiplied by 10 degrees F.)

As announced in last month's issue, the University of Texas Industrial Education Department, in cooperation with the Liquefied Petroleum Gas Association, Inc., Chicago, Illinois, is producing a series of books on LP-Gas. Book I, *Information Manual*, covers a special training course for service personnel but has much information for instructors in the fire service. Excerpts from this book will be included in the next few issues of FIREMEN magazine. Copies of this instructors' guide can be purchased for $3.75 by writing to the University of Texas, Division of Extension, Industrial Education Department, Austin 12, Texas. Checks should be made payable to the University.

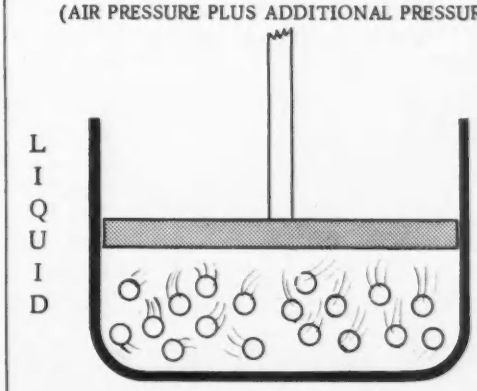
HOW CHANGES IN PRESSURE AFFECT A HYDROCARBON

(WITH TEMPERATURE HELD CONSTANT)

With only the pressure of the air pressing on it, one of the LP-Gases -- butane -- would remain a gas at any temperature more than 32 degrees above zero F.



BUT, if more pressure were exerted on the same gas, the molecules would be forced together to form a liquid, even at temperatures exceeding 32 degrees above zero. Because they would have to overcome this additional pressure to expand and become a gas, the butane molecules would not boil except at a higher temperature than 32 degrees -- so long as the additional pressure remained.



Fire Protection for Chemicals

THESE suggestions on handling various incidents involving alkali metals are excerpted from the NFPA book *Fire Protection for Chemicals.* The 152-page book was written by Deputy Chief Charles W. Bahme of Los Angeles and is available from NFPA at $3.00 per copy.

AMMONIUM COMPOUNDS

Ammonium compounds have the NH_4 group in their formulas. Many are explosive, such as ammonium bromate, chromate, chlorate, dichromate, nitrate, nitrite, perchlorate, permanganate, persulfate, picrate, sulphnitrate, etc., being susceptible to detonation by varying degrees of shock and sometimes by heat. Some are flammable and are skin irritants, such as ammonium dichromate, which when burning in a small fire, gives a striking resemblance to an erupting volcano, progressively increasing in intensity and rate of propagation. Ammonium dichromate begins to decompose at 365°F. with the evolution of heat and gases. It can be ignited by flames or sparks.

When properly segregated in storage from other oxidizers and also from flammable liquids, flammable solids, corrosive liquids, etc., the above compounds would not necessarily present an explosion hazard in case the storage building should become involved in fire. Be sure to ascertain the characteristics of the particular ammonium compound, however, for some are nonflammable and relatively nonhazardous, such as ammonium hydroxide (aqueous ammonia — spirits of ammonia), while others like ammonium nitrite are very unstable and will detonate at temperature above 158°F.

Fire Fighting — Ammonium Compounds

Some ammonium compounds give off toxic gases when heated. Where large amounts of orange-brown smoke are present, use self-contained type of mask.

Water from hose streams can be used effectively on water-soluble compounds and practically all ammonium compounds are soluble, although some are coated to make them insoluble. Where a salt is in a molten state, however, water streams may cause spattering and steam eruptions.

Where certain ammonium compounds, such as ammonium nitrate, are heavily confined, as in the hold of a ship, detonation may result during the course of the fire. If a ship containing large cargoes of ammonium nitrate becomes involved in fire, its removal should be commenced (from congested areas) before starting extensive fire fighting operations. If flooding fails to extinguish the fire within an hour, the ship should be scuttled in a remote area or be put to sea and abandoned when further fire extinguishing efforts fail to control the fire. (See **Fertilizers** and **Nitrates** for additional comments on ammonium nitrate.)

CHIEF James W. Just, retired, passed away at Grand Rapids, Michigan, on March 24. Jim Just was one of the pioneers of fire service training and a charter member of the NFPA Committee on Fire Service Training. He was for many years director of the Fire Service Extension at the University of Maryland and had previously been fire chief at Jackson, Michigan. After leaving Maryland he worked for several years at Underwriters' Laboratories, Inc. in Chicago. He was the author of a number of feature articles which appeared in FIREMEN magazine, the latest of which is "Would You Like To Be 'It'?" in the February issue.

Baby Sitter Training

FROM time to time, FIREMEN magazine has featured articles on baby sitting training courses sponsored or aided by fire departments. A report of another successful course has been received from Chief E. F. Bartels of the Shorewood, Wisconsin, Fire Department.

He states that a baby sitters' "clinic" was conducted for the second time in Shorewood recently. Last year, 40 students enrolled for the training; this year the enrollment grew to 180 students. The classes are held in four of Shorewood's schools, and students from the 7th to 12th grades of nine schools attended, registering at their own schools for the training.

The clinic consists of a one-hour session every day after school, for five days. Instructors are members of the fire and police departments, the Visiting Nurses' Association, and the local Red Cross chapter. One session features a panel discussion between three mothers and three experienced baby sitters. This covers wages to be paid baby sitters and the expected duties and conduct of the sitters. In other sessions, the fire department teaches accident and fire prevention, the nurses teach care of children, the Red Cross members teach first aid, and the police teach personal and property security.

Chief Bartels reports that the response to the training has been very favorable. (*Other fire departments interested in establishing or helping baby sitter training can get a useful information kit free from the NFPA. This explains how a training program can be started, tells what other fire departments have accomplished, and includes suggested news releases and other helpful materials. Kits can be ordered from the NFPA Public Relations Department, 60 Batterymarch Street, Boston 10, Massachusetts.* — Ed.)

Fire Prevention Newsletter

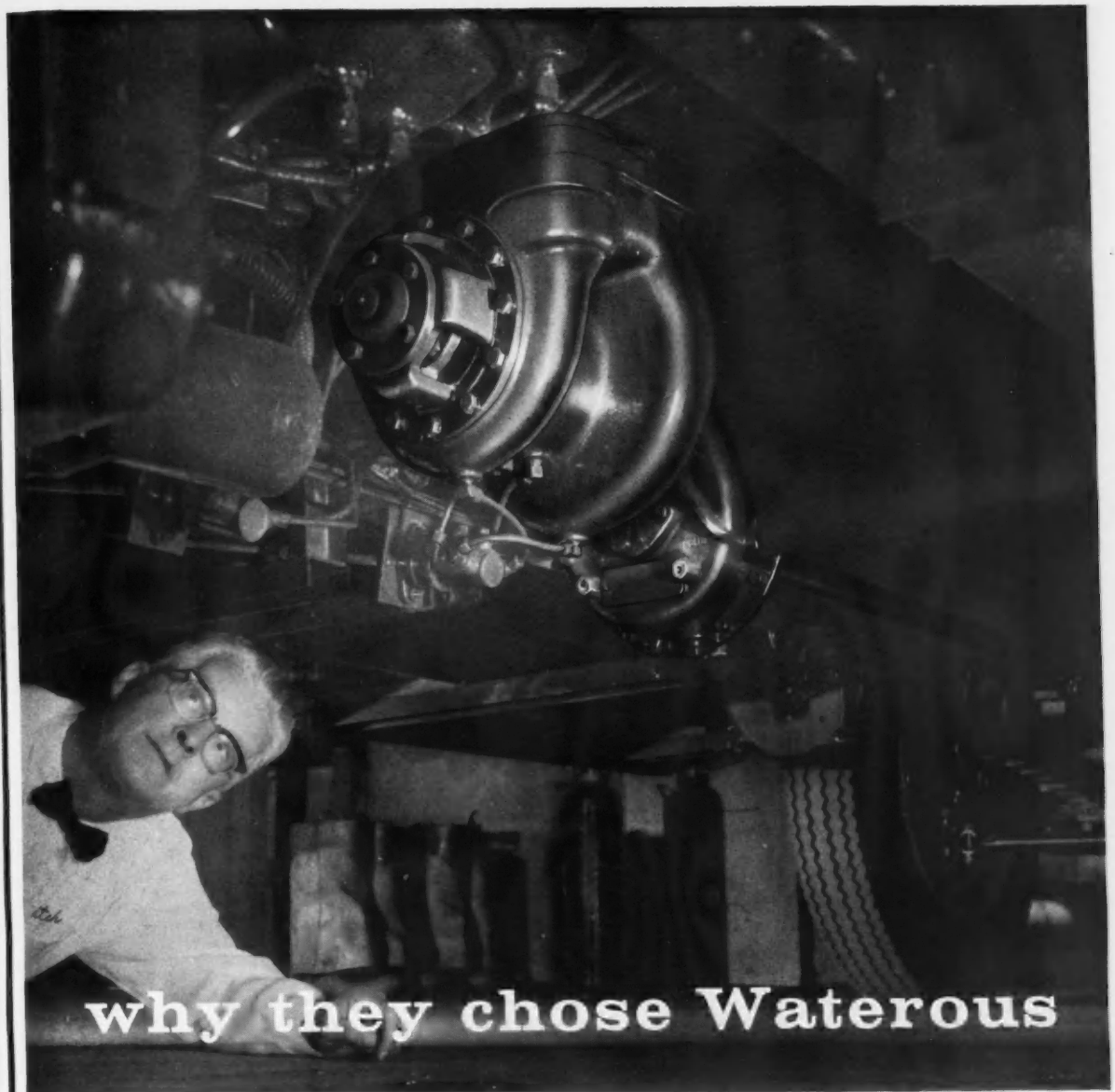
A NUMBER of original and effective child fire safety programs are cited in the current issue of *Sparky News.* It also contains a detailed description of the successful procedure for fire station visits developed by the Port Angeles (Washington) Fire Department.

Sparky News, a four-page illustrated newsletter, is published quarterly and is sent without charge to anyone interested in child fire safety. If you wish to receive it, send your name and address (and organization) to the NFPA Public Relations Department, 60 Batterymarch St., Boston 10, Massachusetts.

Mutual Aid Conference

THE Third Annual Mutual Aid Conference will be held in Baton Rouge, Louisiana, May 10–12. The conference is sponsored by the Baton Rouge Mutual Aid System, Baton Rouge Chapter of American Society of Safety Engineers, and Industrial Security Institute.

Headquarters will be at the Bellmont Motor Hotel. For details, write to Chief Robert A. Bogan, P.O. Box 96, Baton Rouge.



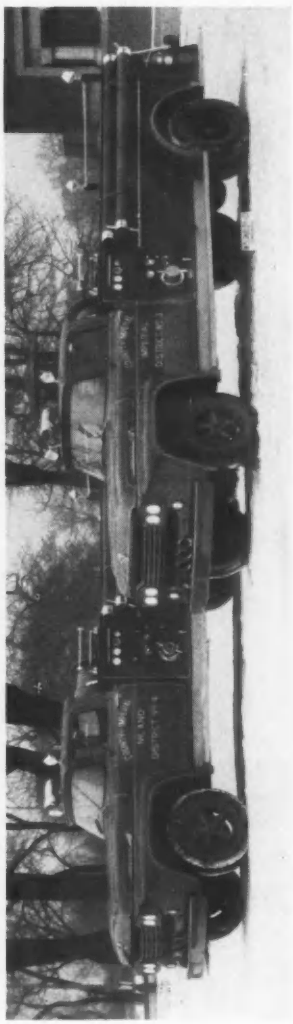
New CP-3 Pump gives maximum booster pump performance!

The Waterous Model CP-3 provides maximum performance—a wider range than ever before possible—for P.T.O. operation. This two-stage, centrifugal pump has exclusive series-parallel design . . . parallel for volume, series for pressure. It has a capacity up to 350 GPM, pressures to 700 PSI. Pressures up to 1000 PSI are available with Underwriters' pump. Ideal for "pump and roll" and for fog operation. Waterous quality construction throughout includes helical gears and oil-lubricated, outboard, antifriction bearings. For complete information on the CP-3 and other Waterous pumps, write:

WATEROUS COMPANY

80 E. Fillmore Ave., St. Paul, Minnesota, Dept. 210

Two More Champions! A Reorder! For Imperial County, California



You'll want to know all about our low cost finance plan or combination PURCHASE-RENTAL plan.

W. S. Darley & Co., Chicago 12

– Factories –
Chicago and Chippewa Falls, Wis.

Fire Control Film List

TITLES, descriptions and distributors of more than 200 motion picture films on firemen's training, fire control, and fire prevention are included in a new pamphlet just released by the Association. Priced at 50 cents per copy, the 32-page, 4- by 9-in. booklet contains a brief description of each film and details on price and availability. The list originally appeared serially in several recent issues of this magazine.

The list was prepared by the editors of FIREMEN in response to numerous requests. Inclusion in the list does not imply endorsement of recommendations, techniques, evolutions or products used or advertised in the films. The booklet includes films dealing with the following subjects: fire department operations, fire prevention, industrial fire protection, forest, brush and grass fire fighting; aircraft fires, civil defense, and fire films suitable for a general audience. Copies may be obtained from the NFPA Publications Department, 60 Batterymarch Street, Boston 10, Massachusetts.

Chief Henry Thomas Joins NBFU

ON APRIL 1, Chief Henry G. Thomas retired after 41 years of service with the Hartford, Connecticut, Fire Department. During his career as chief he won international recognition and many significant honors from the fire service.

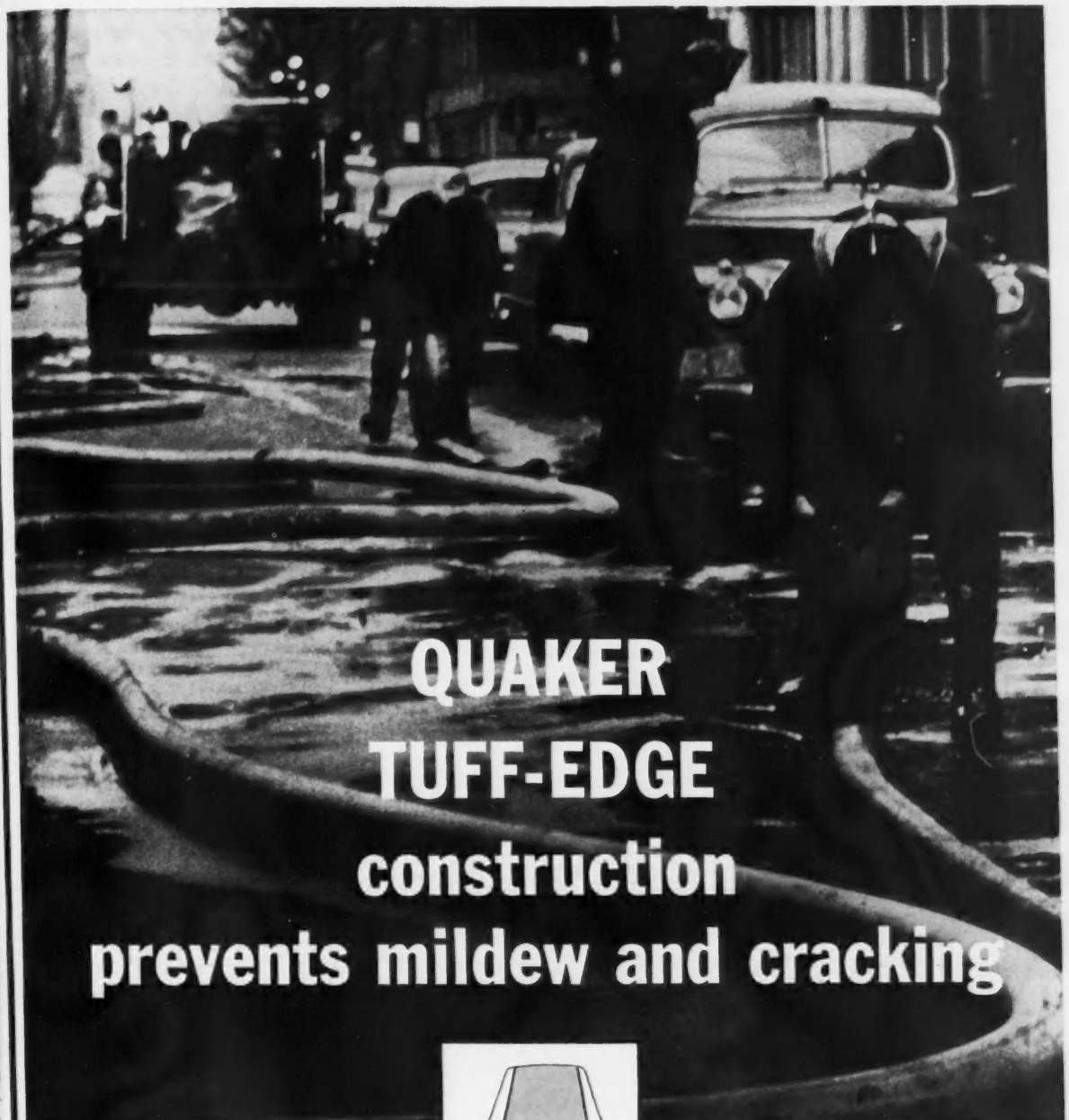
He was the first uniformed fire chief to serve as president of the National Fire Protection Association. He was the first American honorary member of the British Fire Officers' Association. He is an honorary member of the Institute of Fire Engineers of England and, past president of the Connecticut State Fire Chiefs' Association and the International Association of Fire Chiefs.

He led the Hartford Fire Department to national prominence in fire prevention. Hartford won three grand awards in the United States Chamber of Commerce year-round fire prevention contest and ten first awards in its population class. Hartford also won several of the top awards in the NFPA Fire Prevention Contest.

Chief Thomas has been active in the work of NFPA for 18 years. He is now chairman of the Committees on Fire Department Organization and Fire Department Equipment and also serves on the Committees on Civil Fire Defense, Forest Fire Protection and Outdoor Assembly.

He joined the Hartford Fire Department on April 1, 1918 and rose through the ranks to the top position. He was appointed a lieutenant in 1930, a captain in 1933, acting deputy chief in 1935, fourth deputy chief in 1938, first deputy chief and fire marshal in 1942, assistant chief in 1945, and finally chief of department in 1946.

Chief Thomas has now joined the staff of the National Board of Fire Underwriters in the capacity of consultant. In announcing this appointment, Lewis A. Vincent, General Manager of the NBFU, said Chief Thomas would have headquarters in the East and would work with Jay W. Stevens in promoting the home inspection program of the International Association of Fire Chiefs.



QUAKER TUFF-EDGE construction prevents mildew and cracking

Edge reinforcement of synthetic fiber takes repeated folding without cracking, dries fast, reduces weight by 15%, saves storage space.

...Hose lasts at least five times longer, too. The exclusive "Dacron" edge of TUFF-EDGE* hose doesn't absorb moisture—can't mildew in the folds even if it's soaked with water. Cracks can't develop in the frequently-flexed edges. In fact, small and large fire companies that have used TUFF-EDGE report that it lasts five or more times longer than conventional types of cotton-jacket hose.

TUFF-EDGE tests at 600 lbs., is available in 50-foot lengths, in 1½" and 2" diameters. Standard couplings. For complete information, ask your Thermoid distributor or write *Thermoid Division, H. K. Porter Company, Inc., Tacony & Comly Sts., Philadelphia 24, Pa.*

THERMOID DIVISION PORTER **H.K. PORTER COMPANY, INC.**

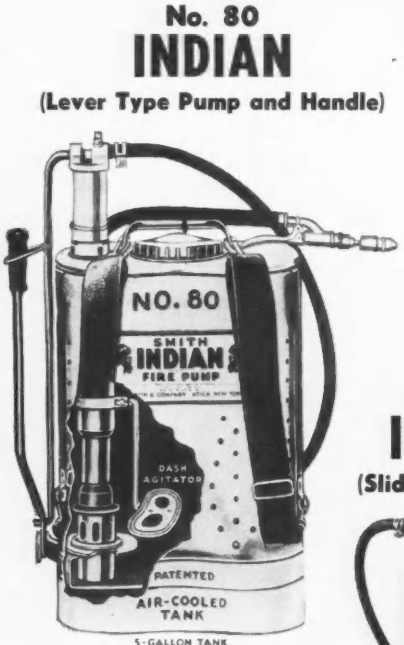
PORTER SERVES INDUSTRY: with Rubber and Friction Products—THERMOID DIVISION; Electrical Equipment—DELTA-STAR ELECTRIC DIVISION, NATIONAL ELECTRIC DIVISION; Copper and Alloys—RIVERSIDE-ALLOY METAL DIVISION; Refractories—REFRACTORIES DIVISION; Electric Furnace Steel—CONNORS STEEL DIVISION, VULCAN-KIDD STEEL DIVISION; Fabricated Products—DISSTON DIVISION, FORGE AND FITTINGS DIVISION, LESCHEN WIRE ROPE DIVISION, MOULDINGS DIVISION; and in Canada, Refractories, "Disston" Tools, "Federal" Wires and Cables, "Nepcoduct" Systems—H. K. PORTER COMPANY (CANADA) LTD. *PATENT #2,833,313

Fire Truck built by W. S. Darley & Co., Chicago, Ill., delivered to Manila Fire Department, Republic of the Philippines. Note **INDIAN FIRE PUMPS** mounted.

INDIAN

FIRE PUMPS belong on YOUR truck, too!

No. 80
INDIAN
(Lever Type Pump and Handle)



5-GALLON TANK

Trucks without **INDIAN FIRE PUMPS** are like ham without eggs — incomplete. More and more new Fire Trucks are coming through with **INDIAN FIRE PUMPS** as standard equipment.

Do YOU have an ample supply of these great back-pack fire fighters? They have no equal for quickly extinguishing so many smaller fires. **ORDER NOW!**

No. 90
INDIAN
(Sliding Pump Type)

BOTH TYPES APPROVED BY UNDERWRITERS' LABORATORIES, INC.

Fire fighting authorities who have experimented with a "WET WATER" powder mixed with the water in an **INDIAN FIRE PUMP** tank report it does an excellent job.

Chief H. B. Wells of Newbury, S. C. says: *"Our new fire trucks are equipped with* **INDIANS** *instead of the usual chemical extinguishers. We cannot praise them too highly."*

D. B. SMITH & CO.

"For Over 70 Years the Leaders"

405 MAIN ST., UTICA 2, N.Y.

PACIFIC COAST BRANCHES

Hercules Equipment & Rubber Co., Inc. San Francisco 7, Cal.
Fred E. Barnett Co., Portland, Ore.
Fred E. Barnett Co., Klamath Falls, Ore.
Halprin Supply Co., Los Angeles 15, Cal.
Mill & Mine Supply, Inc., Seattle, Wash.
L. M. Curtis & Sons, Salt Lake City, Utah

CANADIAN AGENTS

Fleck Bros. Limited, Vancouver, B.C.
C. E. Hickey & Sons, Ltd., Hamilton

Fires in Grain Handling Plants — How to Handle Them

THIS subject is covered in a useful booklet which should be of interest to fire chiefs. It has been published by Grain Dealers' Mutual Insurance Company. Well illustrated, the 8½- by 11-in. booklet gives some practical suggestions on how to fight fire in grain handling property particularly in grain elevators. The first section gives a general picture of the typical fire problems that will be encountered on these properties. This is followed by some good recommendations on what the fire chief and fire department can do during inspections, preplanning and the actual fire fighting. Dust explosions, basement fires, cupola fires, dust and cob houses, and spontaneous heating are all discussed in the second section.

The latter portion suggests fire department planning, operations after a fire and includes some interesting case histories of accomplishments by volunteer fire departments.

The booklet is written primarily for fire departments in the grain growing areas in the United States. Copies can be obtained by writing to the Grain Dealers' Mutual Insurance Company at the home office, 1752 North Meridian Street, Indianapolis 7, Indiana, or at the Western Department, 1905 Harney Street, Omaha 2, Nebraska.

SPARKY
T-SHIRTS and SWEAT SHIRTS
Children's sizes only — 2 thru 12

Popular SPARKY emblem in bright Day-Glo red, yellow and black featured on high quality white cotton T-shirts and sweat shirts.

T-SHIRT	SWEAT SHIRT
$1.25	$1.98
postpaid	plus 25c shipping

A postcard brings you a free catalog of other fire novelties and SPARKY products. Order today from —

ROBERTS CO. BOX 86D WAYLAND, MASS.

Cumberland Valley Volunteers

THE 58th Annual Convention of the Cumberland Valley Volunteer Firemen's Association and Fire Prevention Conference will be held in Harrisonburg, Virginia, Aug. 20–22. The convention is sponsored by Fire Company No. 1 of Harrisonburg.

Ford Booklet on Apparatus

THE Ford Motor Company of Dearborn, Michigan, has published an interesting 12-page, 8½-by 11-in., illustrated booklet covering fire apparatus mounted on Ford truck chassis. It is designed to help fire departments select the type of truck that will give satisfactory performance as fire apparatus.

While the booklet covers topics briefly, it does provide some interesting information such as weight distribution of performance requirements as recommended in NFPA Standard No. 19; pump capacity and engine requirements; data for midship mounted single stage and two stage pumps including the approximate horsepower required; important engine data related to typical pump sizes; dimensions and pay load capacity of various Ford truck chassis; and finally, a brief listing of vehicles made by the company for specialized rescue and emergency requirements.

Title of the booklet is "How to Select the Proper Equipment for Fire Fighting." It can be obtained from a local Ford dealer or by writing to the Fleet Sales Department, Ford Division of Ford Motor Company, Dearborn, Michigan.

FD RESCUE MARKERS
to identify

FIRE DEPARTMENT

Homes of the HANDICAPPED

Fluorescent red, black and white decals now in use throughout U. S. and Canada.

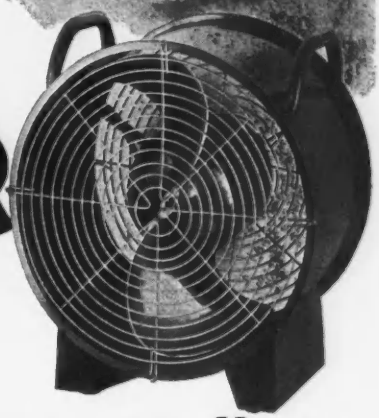
For free samples and details, write to:

FD PRODUCTS
Dept. F-1
514 W. Englewood Ave., Teaneck, N. J.

Get smoke out, get air in

with Multi-Purpose

SUPER VAC



CONTROLLED VENTILATION UNITS

NOT JUST A FAN... but a powerful vacuum-action air screw... Super Vac is amazingly simple in operation, made possible by the efficient design of the **powerful propeller** that is the heart of the unit. This patented propeller produces 100% pulling or blowing power over its entire surface.

Proved method of saving lives while also reducing smoke damage

Fire departments **nation-wide** attest to the speed with which Super Vac provides **controlled ventilation**... so necessary in modern fire fighting. This multi-purpose unit primarily (1) gets rid of smoke and fumes through its powerful vacuum action... or, (2) furnishes a tremendous blast of fresh air into the smoke-congested area, reducing the dangers of combustion and asphyxiation. Although one unit is often sufficient, **complete controlled ventilation** can be more speedily accomplished by using two or more units... one or more units **pulling out the smoke and fumes** while the remaining units **blow in a steady supply of fresh air.**

★ **Highly portable... operates in any position**
★ **Design permits vertical stacking**
★ **Made in 16" and 24" sizes**
★ **AC or DC, regular or explosion-proof motors**
★ **Choice of red or white baked enamel finish**
★ **Running board mounts available**

For complete details and specifications on

... contact your fire equipment dealer

... or write manufacturer

SUPER VACUUM

SUPER VACUUM MANUFACTURING CO., Inc
319½ East Seventeenth Ave., Denver 3, Colorado

CAIRNS
FIRE HELMETS

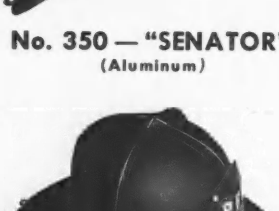
LEATHER, ALUMINUM AND PLASTIC

REGULATION AND DROP BRIM MODELS

No. 5A — "NEW YORKER"
(Leather)

No. 350 — "SENATOR"
(Aluminum)

No. 900 — "CLIFTON"
(Flint-Flex Plastic)



No. 550 — "SEAMLESS"
(Leather)

No. 710 — "STREAMLINER"
(Aluminum)

PRICES TO SUIT ALL BUDGETS

14 STYLES TO CHOOSE FROM

No. 720 — "COMMANDO"
(Flint-Flex Plastic)

THE FIREMAN'S FIRST LINE OF DEFENSE
SINCE 1836

Write for Catalog 350 showing everything a fireman needs for his personal equipment — together with Department Record Books, Secretary's Books, and printed forms.

CAIRNS & BRO., Inc. — Allwood, Clifton, N. J.

63rd Annual Meeting

THE 63rd Annual Meeting of the National Fire Protection Association will be held in Hotels Dennis and Shelburne, Atlantic City, New Jersey, June 1–5. Fire department personnel and other persons interested in fire protection and fire prevention are urged to take advantage of the excellent program schedule for the week. As in previous years uniformed fire department personnel will be admitted to the general sessions without being charged the nominal registration fee.

A digest of the tentative program of the meeting appears below. The final program will appear in the May, 1959, issue of NFPA *Fire News*.

Monday, June 1

FIRE MARSHALS' SECTION, 9:45 A.M. AND 1:30 P.M.
Major topics:
Public Safety & Ammonium Nitrate
Current Developments in Arson
School Fire Problem: Symposium

AVIATION OPEN MEETING, 10:00 A.M.
Major topics:
Aviation Fire Research
Technical Problem Areas in Aviation Fire Safety

ANNUAL GET-TOGETHER PARTY, 5:30 TO 7:30 P.M.

Tuesday, June 2

FIRST GENERAL SESSION, 9:00 A.M.
Official Welcome—Addresses of the President, General Manager and others
Address by Edward F. Cavanagh, Jr., Fire Commissioner, City of New York
A Greeting from "Down Under" — Remarks by G. Gordon Russell, Chairman, Wormald Brothers Industries, Ltd., Sydney, Australia
Fire Protection Organization — The Human Factor

SECOND GENERAL SESSION, 1:30 P.M.
Aviation & Airport Protection
The Why of Growing Fire Losses

FOR SALE!

1938 BUFFALO
750 GPM PUMPER

Excellent Condition—Now in Service.

Contact:
JAMES E. HUSTEAD
51 DURHAM ROAD
HAMBURG, NEW YORK

or telephone collect:
FRONTIER 2294

The British Institution of Fire Engineers
Modern Salvage Practices

ELECTRICAL SECTION, 1:30 P.M.

Wednesday, June 3

THIRD GENERAL SESSION, 9:00 A.M.
- Suburbia's Growing Danger from Lightning
- Fire Protection of Middle Eastern Petroleum Facilities
- Industrial Applications for Fire Resistant Hydraulic Fluids
- Identifying Hazards of Plastics: Panel

SOCIETY OF FIRE PROTECTION ENGINEERS, JOINT CHAPTER LUNCHEON, NOON

FOURTH GENERAL SESSION, 2:00 P.M.
- Handling LP-Gas Tank Truck Accidents: Panel
- Fire Hazards of Oxygen Handling

SOCIETY OF FIRE PROTECTION ENGINEERS, ANNUAL MEETING, 8:30 P.M.

Thursday, June 4

FIFTH GENERAL SESSION, 9:00 A.M.
- Carbon Dioxide Flow Characteristics in Pipelines and Nozzles
- Extinguisher Maintenance and Service: Symposium
- Construction and Protection of Motor Freight Terminals

SIXTH GENERAL SESSION, 1:30 P.M.
- Windstorm Protection: The Fire Protection Engineer's Responsibility
- Obstacles to Industrial Fire Brigade Training
- Fire Hazards of Materials

FIRE PREVENTION EDUCATION, SPECIAL SESSION, 1:30 P.M.
- Organizing your Community for Fire Safety Education

MOTION PICTURE PROGRAM, 8:30 P.M.

Friday, June 5

FINAL GENERAL SESSION, 9:00 A.M.
- The Los Angeles School Building Fire Experiments
- New Developments in Fire Retardant Paint
- Designing Sprinkler Systems, or How Much Water?

FIREMEN!

INCREASE YOUR INCOME!

Convert your spare time into steady income selling most popular line of Belts and Buckles with Fireman's personal initials, first name or nickname with miniature replicas of actual fire equipment beautifully enameled, also lapels, tie clasps, key chains, money clips, and cuff links. Excellent repeat business. We furnish you with FREE complete sales kit. Really nice part-time money producing items.

NO INVESTMENT NECESSARY!

For full particulars, write to

HOOK-FAST SPECIALTIES, INC.

Factory — 16 Eudora St.

P.O. Box 1425F Providence, R.I.

Onan NEWS REPORT

Onan Standby Electric Plants guarantee power in emergencies

This Onan 10KW emergency electric plant is installed in the community building of *Indian Hills, Ohio.* It not only provides the police department with all the light and power required, but supplies needs of the fire department, too!

When power interruption occurs, the Onan plant starts automatically and supplies current for all essential purposes . . . lights, radio communication, signals, heating system, and other motor-driven equipment.

Dependable Onan emergency electric plants provide electric power for operation of all vital municipal services. In time of disaster, when power interruptions are most likely to occur, emergency power saves lives, protects property, helps to restore and maintain order. Available in sizes from 500 to 200,000 watts; Diesel or gasoline-powered models.

Teletype machines in the Norwalk, Connecticut police department are supplied with power in emergencies by an automatic Onan Standby Plant. Norwalk's 3,500-watt Onan unit also furnishes power for the oil burner, radio, ventilating fans and 60 fluorescent lights.

See your local distributor or write for folder on standby models

D. W. ONAN & SONS INC.

2799 University Ave. S.E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS

Onan ELECTRIC PLANTS

NFPA General Manager Percy Bugbee presents Grand Awards . . .

To James E. Cross (right), Special Assistant to the Assistant Secretary of the Navy.

To Franklin Floete, Administrator of the General Services Administration.

To the Honorable John M. Ferry, Special Assistant for Installations to the Secretary of the Air Force. At right is Brig. Gen. Christian F. Dreyer, Deputy Director of Civil Engineering, Office of the Deputy Chief of Staff, Operations Headquarters, USAF, holding certificate awarded to Wright-Patterson Air Force Base.

Fire Prevention Awards

NFPA General Manager Percy Bugbee recently presented awards to various branches of the U. S. Government for accomplishment in the NFPA Fire Prevention Contest. The Army, Navy, Air Force and the General Services Administration were the recipients of some of the Contest's Grand Award plaques. Presentation photos are on these pages.

In the Military Divisions, the Grand Award went to Fort Ord, California, for excelling among entries from the U. S. Army. Wright-Patterson Air Force Base in Ohio topped all Air Force entries, while the Naval Ammunition Depot in Hingham, Massachusetts, had the best of the entries from the Navy.

In the Government Division of the Contest, Region 3 of the General Services Administration, Washington, D. C., had the winning entry.

Winners of the municipal and industrial divisions were announced in the February, 1959 issue of FIREMEN magazine. The Contest, spon-

Better Hose Care-with CIRCUL-AIR
HOSE CONDITIONING EQUIPMENT
WASHERS • DRYERS • TURN-TABLES • STORAGE RACKS

ROTO-JET HOSE WASHER
AUTOMATICALLY
WASHES—RINSES—DRAINS HOSE

ROTO-JET Washes, Rinses, Drains hose thoroughly and quickly. Hose is self-propelled. Simple one-man operation. With or without detergents, ashes, glass and sludge are automatically scrubbed out and flushed away. Lengthens hose life. Foot-Pedal Operation.

FIRE HOSE DRYER

The patented, electrically operated Circul-Air hose dryer circulates pre-warmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. No other drying method is so fast — so economical — so easy to use. The preferred dryer in over 5,000 leading Fire Departments.

ACCEPTED - APPROVED
RECOMMENDED

Approved by Underwriters' Laboratories . . and Canadian Standards Association. Recommended by all leading fire hose manufacturers.

The fast, modern way to handle, store and load hose.

PORTO-RAK
MOBILE
HOSE STORAGE
AND
LOADING UNIT

Saves valuable space. Holds 1,800 ft. of 2½" hose—proportionately more of 1½"—in an 8 ft. space (when loading table is detached). Roll it right up to the truck for reloading—out of the way when not in use. Equipped with locking fiber-wheeled casters.

WRITE FOR NEW LITERATURE

If you are planning to build or remodel, send for our brochure "Fire Station Design."

THE CIRCUL-AIR CORPORATION
575 EAST MILWAUKEE
DETROIT 2, MICHIGAN

To Secretary of the Army Wilbur M. Brucker (third from left) for Ford Ord, California. Looking on are (left to right) J. M. Wolverton, Army Corps of Engineers and D. H. Wilkinson, Army Safety Director. At extreme right is Maj. Gen. W. K. Wilson, Deputy Chief of Army Engineers.

sored by NFPA each year, provides a means of evaluating the fire prevention achievements of municipalities, industry, military and government agencies. When entry blanks are available for this year's Contest, announcement will be made in this magazine and NFPA *Fire News*.

IRFAA Officers

CONRAD H. KREYLING, River Edge, New Jersey, has been appointed president of the International Rescue and First Aid Association, succeeding R. Herman Weaver, Roanoke, Virginia. Mr. Kreyling is with the New York Telephone Company.

M. Lloyd Fuller, Dallas, Texas, was appointed first vice president, succeeding Mr. Kreyling; and Frederick Evans, Arnprior, Ontario, Canada, was named second vice president, succeeding Joseph J. Banach, Marinette, Wisconsin.

New York State Building Code Manual

THE New York State Building Code Commission has announced a new edition of the Code Manual for the New York State Building Construction Code. The manual is a 350-page illustrated handbook intended to assist building officials, architects, engineers and builders in interpreting and enforcing the State Code which is now used by 286 municipalities in New York State. Send inquiries about the manual directly to the New York State Division of Housing, 270 Broadway, New York, New York.

This new publication brings up to date an earlier edition published in 1954. Among the new material is the subject of heat and smoke vents in large one-story factory buildings covered in conformance with the recommendations of the NFPA Building Construction Committee.

More for your Money...in MORYSVILLE

NEW F-106 RESCUE BODY

- Heavy duty construction.
- Diamond plate decks.
- Double paneled doors with full-length rod type hinges.
- Chrome plated rub rails and hand rails.
- Two ladder rack compartments.
- 108" CA.

Custom built to carry high pressure water pump, generator, suction hose, Indian tanks, four resuscitators, six extra D tanks, etc.

MORYSVILLE Body Works INC.

813 SOUTH READING AVE., BOYERTOWN, PENNA.
DISTRIBUTORS IN PRINCIPAL CITIES

Also a complete line of compact and versatile Fire, Fire-Crash, Rescue and Emergency Units and Special Built Fire Bodies. Finest materials and workmanship, extra-rugged construction and original modern design. Compartments arranged for handy stowage of fire fighting, first aid and life saving equipment, helmets, rain gear, tools, tanks, portable pumps and generators, etc.

Write for FREE Literature

How Many Sprinkler Heads Do You Carry?

THE Ohio Inspection Bureau recently sent a survey form to fire chiefs in 210 Ohio towns. Each town had one or more properties protected by automatic sprinklers. The survey consisted of a brief questionnaire covering practices of the fire departments with respect to sprinkler-protected properties.

Among the questions was this one:

Does your department have a supply of spare sprinkler heads available for use in restoring a system to service?

Of the fire departments responding, 22 per cent said they carried spare sprinkler heads on apparatus. Twenty-four per cent reported that extra sprinkler heads were at the sprinklered property. The remaining four per cent of fire departments reported that they did not have a supply or did not know of a supply of sprinkler heads.

It would be well for all fire departments that protect sprinklered properties to maintain a supply of sprinkler heads for emergencies. The Ohio Inspection Bureau recommended after the survey that a fire department should have a supply of 25 or 50 sprinkler heads and knowledge of where extra sprinkler heads may be obtained from other sprinklered properties.

"This is particularly the case," said the survey, "when the fire department makes an effort to restore protection at night or on weekends when personnel familiar with the plant may not be available."

NFPA Standard No. 19 specifies that ladder trucks should carry 12 sprinkler heads of assorted temperatures, six sprinkler stoppers or wedges, and two sprinkler head wrenches. For salvage trucks, one box of sprinklers, six sprinkler stoppers and one set of sprinkler wrenches are recommended by the standard. An article describing proper fire department operations for sprinklered properties appeared in the February, 1959, issue of FIREMEN magazine.

Pay Boost in New York City

A NEW pay scale for New York City fire fighters goes into effect July 1, 1959, as shown below. These figures do not include a $100 uniform allowance. The department works a 42-hr. week.

Chief of Department	$16,453
Assistant Chief (Deputy Chiefs detailed)	13,271
Deputy Chief in Charge (Deputy Chiefs detailed)	12,529
Deputy Chief (Division Chiefs)	11,156
Battalion Chief	9,663
Captain	8,436–9,011
Lieutenant	7,391–7,678
Fireman, First Grade	6,081
Fireman, Second Grade	5,435
Fireman, Third Grade	4,910
Fireman, Fourth Grade	4,700

This amounts to a $200 increase below the rank of captain, $277–$296 increase for captain, $318 for battalion chief, $367 for deputy chief, and $541 for chief of department.

Aircraft Rescue and Fire Fighting Chart

LOCKHEED Aircraft Corporation recently published the chart on the opposite page. It is designed to give customers of the corporation and fire fighting personnel information on the Electra Model 188 which is used in Continental and International passenger service.

The chart is self-explanatory and readers of FIREMEN magazine are urged to study the features of this aircraft in detail. Copies of this chart are available on 8½- by 11-in. heavy paper stock by writing to: Field Service Technical Distribution Group, Department 64-01, Lockheed Aircraft Corporation, P.O. Box 551, Burbank, California. The chart will also be incorporated in a forthcoming issue of the corporation's *Field Service Digest*, which, in the past features the same sort of useful instructional material covering the constellation series transport planes. The corporation also publishes a special field service digest in Spanish including 14 pages of crash rescue information on the Constellation and Super Constellation aircraft. NFPA members and fire departments who can make use of this Spanish publication should request copies from the Field Service Technical Distribution Group.

Fire departments who wish to make a general review of aircraft crash rescue and fire fighting procedures should obtain a complete set of the charts published by the NFPA for various types of aircraft. These charts are listed by index number and title below. They are available for fifteen cents each from the NFPA Publications Department.

JH 32, "Singed Wings Can't Fly"; 53–1, American Airlines Convair Liner CV-240, Ground Emergency Features; 53–2 American Airlines DC-6, DC-6A, DC-6B, DC-7, Ground Emergency Features; 54–1, DC-3, C-47 Crash Crew Chart; 54–2, C-124 Crash Crew Chart; 54–3, DC-4, C-54 Crash Crew Chart; 54–4, R4D-8, Super DC-3 Crash Crew Chart; 403-1A, Principles of Rescue — Civil Aircraft; 403–1B, Principles of Rescue — Civil Aircraft; 403–2A, Principles of Fire Fighting — Civil Aircraft; and 403–2B, Principles of Fire Fighting — Civil Aircraft.

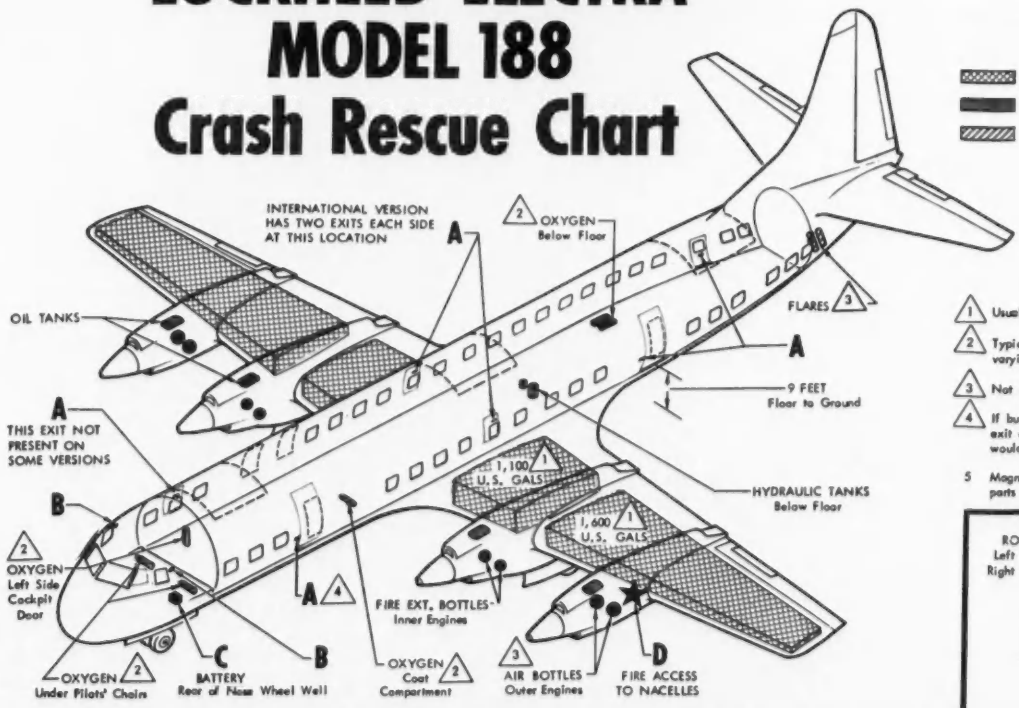
FYRUMBRELLA enables men to stay right up there—no need to be "run out" by roaring heat! No more lurking behind pieces of metal, bed springs, doors, wetted down tarps or blankets.

● Five feet square, when open, the aluminized surface deflects 95% of the radiant heat. The tough **GLASS** cloth construction makes it non-burnable. Three men with 2½" lines and any type nozzles may work through the hose port. Adequate forward vision is provided by eye ports on each side. The **FYRUMBRELLA**, weight only 9½ lbs., folds so compactly that it fits inside a section of 4" suction hose. The **FYRUMBRELLA** combines an aluminized reflective surface on strong, non-burnable glass cloth backed by a coating of neoprene for greater strength. Hardware is of a rugged steel construction to withstand raps and bumps. Write for complete information on Fyrumbrella, other Fyrepel Fire Fighting Equipment and Heat Protective Clothing.

FYREPEL PRODUCTS, INC.
Dept. A Box 503 Newark, Ohio

LOCKHEED ELECTRA

LOCKHEED ELECTRA MODEL 188 Crash Rescue Chart

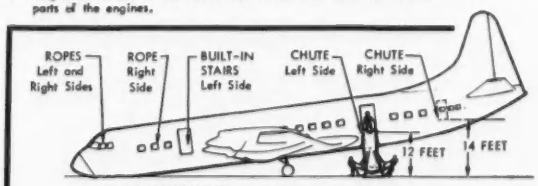


FUEL — ENGINE OIL OR HYDRAULIC FLUID
OXYGEN — "CHOP THRU" AREAS
FLARES — EMERGENCY EXITS AND DOORS

PRINCIPAL STATISTICS

WING SPAN		99 FT.
FUSELAGE LENGTH		105 FT.
OPERATING WEIGHT	EMPTY	60,000 LB.
	MAX. TAKE-OFF	113,000 LB.

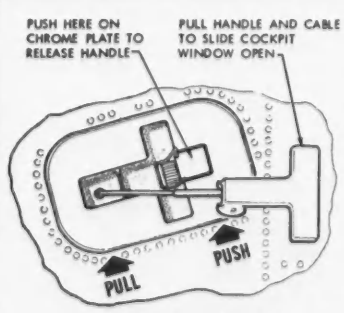
1. Usual fuel is kerosene but JP4 may be used alternatively.
2. Typical oxygen installation is shown. Individual airlines have varying arrangements.
3. Not installed on all airplanes.
4. If built-in stairs are fitted, the front door is not a primary emergency exit and it would not be useable as a "Chop-Thru" area. The front door would have to be fully opened to release the folded stairs.
5. Magnesium is used in the construction of the nose wheel and certain parts of the engines.



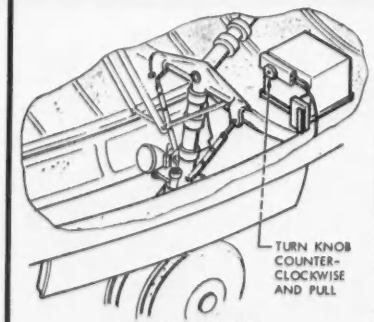
ESCAPE EQUIPMENT - LOCATED AT EMERGENCY EXITS. EQUIPMENT VARIES WITH INDIVIDUAL AIRLINES

MAIN CABIN DOORS ONLY: 4
PUSH "RELEASE" PLATE. LIFT DOOR TO OPEN
ALL OTHER EMERGENCY EXITS:
PUSH "RELEASE" PLATE. EXIT FALLS INWARDS

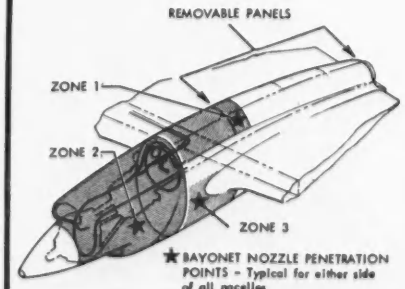
EXIT RELEASE — CABIN
DETAIL A



EXIT RELEASE — FLIGHT STATION
DETAIL B



BATTERY DISCONNECT
DETAIL C



FIRE ACCESS TO NACELLES
DETAIL D

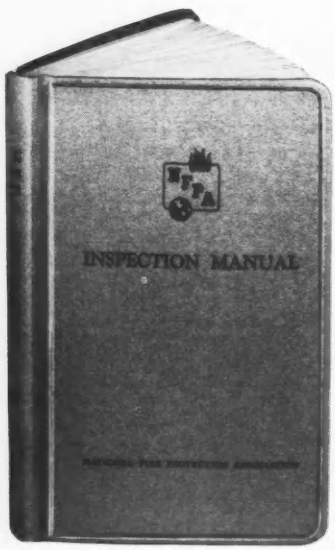
ANNOUNCING

the

new

NFPA INSPECTION MANUAL

SECOND EDITION



$4.00

per single copy

Orders are now being accepted for the Second Edition of the popular NFPA Inspection Manual — one of the most useful pocket-sized reference books for fire inspectors and fire fighters. Prepared by the NFPA staff, assisted by a distinguished group experienced in inspection problems, the book is particularly helpful to beginners and is equally important to experienced personnel.

Much new material has been written for this 1959 edition, particularly such subjects as smoke pipe clearances, resins and plastics, radioactive materials, pyrophoric metals, flamespread rating, and extinguisher testing and rating. A number of new tables are included together with standard plan symbols in full color.

Particular attention is given to inspection procedure, what to look for in various occupancies, heating hazards, inspection of protective equipment, what "approvals" mean, and how to make plans and reports.

320 pages, 4½- by 6⅝-in. rounded corners

Flexible Bronze Cloth Binding

TABLE OF CONTENTS

Inspection Procedure
Plant Organization for Fire Safety and Self-Inspection
Outside Inspections
Hazards by Occupancy
Housekeeping
Storage in General
Domestic Heating Equipment
Domestic Gas Appliances
Domestic Oil Burning
Chimneys and Incinerators
Industrial Heating and Process Equipment
Electricity
Flammable Liquids
Gas Hazards
Explosive Dusts and Combustible Fibres
Chemicals, Explosives and Miscellaneous Hazards
Finishing Processes
Welding and Cutting
Spontaneous Heating
Exits
Building Types
Finish, Insulation, Decorations
Limitation of Fire Spread
Fire Doors and Windows
Air Conditioning, Ventilating and Exhaust Systems
Roofs
Fire Extinguishers
Watchmen, Detection, Supervisory and Alarm Systems
Sprinkler Equipment
Standpipes and Special Extinguishing Systems
Water Supplies for Private Protection
Tanks
Fire Pumps
Fire Brigades and Fire Departments
Laboratory Approvals and Listings
Fire Protection Standards
Standard Plan Symbols
Units of Measurement

ORDER FORM F-5-59

NATIONAL FIRE PROTECTION ASSOCIATION
60 Batterymarch St., Boston 10, Mass.

Please send me.....copy (copies) of the new NFPA Inspection Manual.

Enclosed is..... ($4.00 per copy postpaid.)

Name (*Please print*).....

Address .....

City and State .....

Company and Position .....

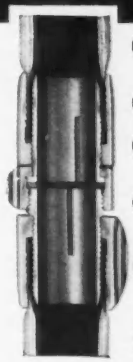
Something to Consider

CHIEFS of NFPA member fire departments can make a number of useful publications available to their men. This column in the past has often urged that FIREMEN magazine should be in every fire station library and that every fire fighter be given a chance to subscribe to the magazine through the department's NFPA membership.

There are, of course, many other NFPA publications that are useful and informative to fire department members. It would be well for every fire chief to get the complete, recently published list of these books, standards, bulletins, folders and other items. He then can study the list and make selections of publications that would be helpful to the master mechanic or other maintenance men, to the men in the fire prevention bureau, to training officers, or simply for the fire department in general.

For example, maintenance men ought to know about specifications for motor fire apparatus. They should be interested in how to test ground and aerial ladders, or what performance to expect from heavy stream appliances. They might like a brief but comprehensive article on general apparatus maintenance. It would be simple for the fire chief to order NFPA publications on these subjects and present them to the Maintenance Department as an inexpensive but useful gift.

Any fire chief who wants one of these new lists of publications only has to request a copy from the NFPA Publications Department.



(Patented)

1. FULL FLOW—no significant reduction of internal diameter. Pressure is assured.
2. STREAMLINED—round-edged design, no projection.
3. INTERNAL EXPANSION—prevents shrinkage of the hose at the coupling.
4. ACCURATELY MACHINED—always the same . . . interchangeable.
5. REMOUNTABLE—can be removed and re-attached with a key any number of times without cost.
6. WEIGHT—no heavier than comparable expansion type coupling.

Successfully Tested To Bursting Point Of Double Jacket, Single Jacket And Sweat Hose

Recognizing the trend toward higher and higher pressures in fire fighting, Bar-Way has developed a revolutionary coupling that will withstand the pressure and the pull. This new coupling is designed to fire fighting specifications. It guarantees full flow, full pressure, it is streamlined to slip over obstructions, and it can be interchanged anywhere at any time without damage to either the tube or fabric. Specify Bar-Way! Write Bar-WayMfg.Co.,Stamford,Conn.

Available in polished bronze in both standard rocker and forestry lug. 1½" in production. Larger sizes will be available.

BAR-WAY BAR-WAY MFG. CO., STAMFORD, CONN.

NFPA Welcomes the following chiefs and fire departments who recently joined the Association.

Arizona: Safford Fire Department, Safford.

Arkansas: Chief Steve Moore, Marianna Fire Department, Marianna; Tuckerman Volunteer Fire Department, Tuckerman.

British Columbia: Wellington Fire Protection District, Wellington.

California: Campbell Fire Department, Campbell; North Fresno Volunteers Mid Valley Fire District Station 6, Fresno.

Illinois: Chain Belt Company, Dolton.

Indiana: Mill Township Fire Department, Marion.

Maine: Brewer Fire Department, Brewer; Goose Rocks Beach Fire Company, Kennebunkport; Chief James H. Leighton, Limestone; Jay Fire Department, North Jay.

Maryland: The Community Fire Company, Inc., Perryville.

Michigan: Ewen Fire Department, Ewen.

New Hampshire: Silver Lake Hose Company No. 1, Warner.

New Jersey: Huntington Volunteer Fire Company No. 1, Phillipsburg; Woodcliff Lake Volunteer Fire Department, Woodcliff Lake.

New York: Bainbridge Fire Department, Bainbridge; Blasdell Volunteer Fire Department, Blasdell; Brocton Fire Department, Brocton; West Corners Fire Company No. 1, Endicott; F. H. M. Volunteer Fire Department, Hulberton; Lakeside Fire Department, Inc., Syracuse.

North Carolina: Fire District No. 13, Inc., Greensboro.

North Dakota: Chief Walter Christianson, Watford City Fire Department, Watford City; Wildrose Fire Department, Wildrose.

Ohio: Silverton Volunteer Fire Department, Silverton. Chief George I. Peterson, Citizens' Fire Company No. 1, Mount Holly Springs.

Quebec: Chateauguay Volunteer Fire Department, Chateauguay.

Saskatchewan: Rocanville Volunteer Fire Brigade, Rocanville.

South Dakota: Board of Charities and Corrections, Pierre.

Vermont: Bellows Falls Fire Department, Bellows Falls; Shaftsbury Fire Company, South Shaftsbury.

IMPORTANT FIRE SCHOOL DATES

Alabama: The 23rd Annual Alabama Fire College will be held on the Northington Campus, University of Alabama, May 25–29. For details write to W. L. Rickard, Assistant State Supervisor, Trade and Industrial Education, P.O. Box 2847, University.

Arizona: Tentative dates for the Annual Arizona Fire School in Phoenix are October 15–17. Write to Chief Jake Siken, Training Director, Fire Department Headquarters, Phoenix, for information.

Arkansas: Arkansas State Fire Department Instructors' Training School will be held in Little Rock, June 8–10. Regional fire schools are scheduled as follows: Russellville, May 25–June 4; Crossett, June 15–25. Write to Whit Murphy, Registrar, Arkansas State Fire College, State Education Building, Little Rock.

British Columbia: The Fire Chiefs' Annual Fire College will be held in Burnaby, August 19–21. For more details, write to H. K. Jenns, Supervisor, Traveling Instructional Units, Office of the Fire Marshal, 411 Dunsmuir Street, Vancouver 3.

California: The Fire Training Officers' Workshop (for fire training officers only) will be held in Fresno, May 18–22. The Sixth Annual Fire and Arson Investigation Seminar is scheduled for June 15–19 at the University of California in Los Angeles. Write to Thomas S. Ward, Supervisor of Fire Training, State Department of Education, 721 Capitol Avenue, Sacramento.

Colorado: The Colorado State Fire School and Tournament will be held June 17–20 at Sterling. For further information, write to Chief Arthur Becker, Secretary, Colorado State Firemen's Association, 2224 South Stuart Street, Denver 19. Reservations may be made through Deam Dowis, Chairman, City Hall, Sterling.

Florida: The Florida State Fire College in Ocala will feature a special class in liquefied petroleum gas, May 19–21. Write to W. H. Barnett, Superintendent, Florida State Fire College, Box 785, Ocala.

Georgia: The Georgia Fire Institute for 1959 includes a regional fire school in Savannah, June 8–9. Write to the fire chief at fire department headquarters in Savannah for further information.

Idaho: The Annual State Fire School will be held August 13–15 in Boise. Write to Earl Robinson, Secretary-Treasurer, 212 South 16th Street, Boise, for further information.

Illinois: The 35th Annual Illinois Fire College, June 8–11, and a Fire Inspectors' Short Course, May 18–21, will be held in Urbana. Write to R. K. Newton, Director, Illinois Fire College, 116 D Illini Hall, Champaign.

Indiana: The 26th Annual Indiana State Fire School will be held at Purdue University, September 8–11. Write to Professor Shelby Gallien, Director, Public Safety Institute, Purdue University, Lafayette.

Iowa: Iowa State College in Ames will be the location for the Annual Fire School, June 16–19. Write to Keith Royer, Supervisor, Firemanship Training, 110 Marston Hall, Iowa State College, Ames.

Kansas: The 30th Annual Kansas Fire School will be held in Lawrence, October 19–22. For further information, write to Clyde A. Babb, Director, Kansas Fire School, University of Kansas, Lawrence.

Kentucky: June 1–3 is the date of the Annual Kentucky Fire School to be held at the University of Kentucky in Lexington. Write to John L. Thompson,

U.S. Air Force O-11B
Photo courtesy American-LaFrance

HANNAY reels used on Air Force fire fighting units

Hannay reels in specially designed cabinet installation swing out for fast operation . . . provide Air Force fire fighting teams with water and chemicals *at the nozzle* for instant response. For your equipment, *specify* hose reels designed and built by active firemen . . . insist on HANNAY.

SUSTAINING MEMBER

Standard Hannay electric rewind reel with horizontal auxiliary hand crank rewind. Write for complete catalog.

Hose Reels by HANNAY®

CLIFFORD B. HANNAY & SON, INC., WESTERLO, NEW YORK

Chairman, Fire School Committee, 940 Starks Building, Louisville 2.

Michigan: The Annual Fire College will be held June 16–19. Write to Francis Hartman, Supervisor, Firemanship, University of Michigan Extension Service, 1610 Washtenaw, Ann Arbor.

Missouri: The Ozark-Maries Fire Conference will be held June 21. The Annual Central Missouri Fire Conference is scheduled for July 24–26 at the University of Missouri. For more information, write to William Bush Walden, Administrative Assistant in Charge of Firemanship Training, University of Missouri, Building T-11, Room 101, Columbia.

Montana: The Third Annual Montana State Fire Chiefs' Conference is scheduled for June 11–13 at Miles City. For further details, write to William S. Hayes, Secretary-Treasurer, Montana State Fire Chiefs' Association, 208 Eklund Building, Great Falls.

Ohio: Fire training classes will be held in Painesville, June 6–7 and in West Lake, June 13–14. Write to Charles J. Getz, Training Coordinator, 216 East Butler Street, Loudonville, for more information.

Oklahoma: A Fire Hazard Control Short Course is slated for June 15–26, in Stillwater. Write to R. J. Douglas, Head, Fire Protection Department, Oklahoma State University, Campus Fire Station, Stillwater.

Ontario: The following courses will be given at the 1959 Fire College in Gravenhurst: Basic Fire Inspection Practices, May 25–29; Atomic Fire Hazards in Industry, June 1–5; Advanced Fire Inspection Practices, June 15–July 3. Write to D. E. Barrett, Director, Ontario Fire College, P. O. Box 830, Gravenhurst.

Pennsylvania: Special training classes will be given in fire department officership, May 25 and June 8. A fire department pump school is scheduled for June 22. Write to Art Espey, Director, Pennsylvania State Firemen's Training School, Box 631, Lewistown.

South Carolina: A number of regional fire training schools are given all during the year throughout the state. Write to H. B. Wells, Instructor, Fire Fighter Training, 1539 Harrington Street, Newberry.

South Dakota: The 30th Annual Fire School and 75th Annual Convention of the South Dakota State Firemen's Association will be held in Madison, June 7-12. For details, write to Francis W. Pyncheon, Secretary, P.O. Box 590, Pierre. Reservations may be made through Chief Joe Graves, Fire Department Headquarters, Madison.

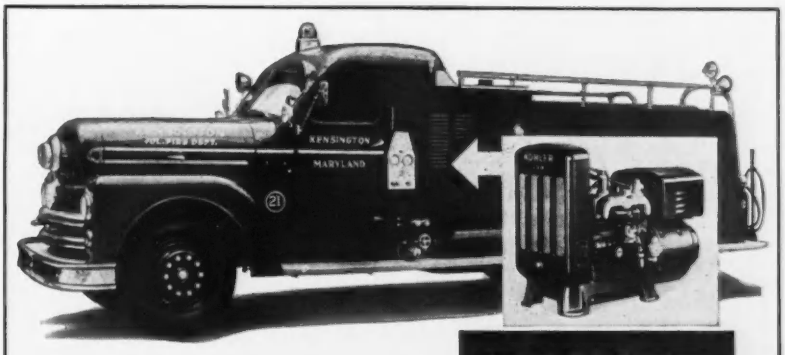
Tennessee: The 16th Annual Tennessee State Fire Service School will be held at the Tennessee Fire Training Center in Murfreesboro, August 17–21. Short courses on fire hazards, liquid metals and new chemicals are scheduled for May 20–22. Write to Homer S. Elkins, Itinerant Instructor-Coordinator, Tennessee State Fire School, 215 Chestnut Street, Chattanooga 3.

Texas: The 30th Annual Texas Firemen's Training School will be held July 19–24 at Texas A & M College. Write to Henry D. Smith, Chief, Firemen's Training School, Engineering Extension Service, College Station.

Virginia: The Fourth Annual Virginia Fire College will be held at the College of William and Mary in Williamsburg, June 22–26. Write to Chief Elliott W. Jayne, Director, Virginia Fire College, Williamsburg.

Washington: Bellingham will be the site of the Annual Fire Conference, July 22–25. A special class for command officers in Yakima will be held May 26–29. Write to Mrs. Emma Ethier, Secretary, Washington State Firemen's Association, 3206 East 125th Street, Seattle 55.

West Virginia: The 29th Annual West Virginia Fire School in Morgantown will be held July 20–24. Write to R. E. Hanna, Jr., Director, West Virginia Fire School, West Virginia University, Morgantown.



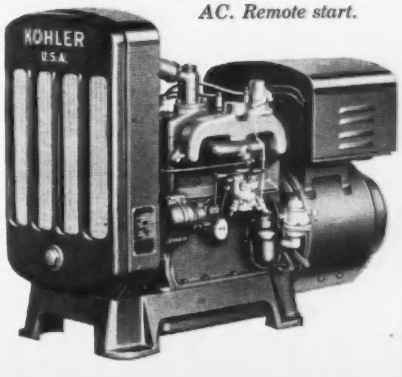
Helps speed fire control

KOHLER ELECTRIC PLANT

POWER ready for instant use is carried by this Kensington, Maryland, Volunteer Fire Department truck. A 5KW Kohler electric plant provides floodlighting and operates tools to increase speed and safety in fire fighting and rescue work.

Kohler electric plants provide a compact, quick-starting source of power for city and rural fire departments. Larger, stand-by models maintain alarms, communications, when emergencies cut off regular power. Sizes to 100 KW, gasoline and diesel. Write for folder E-14.

Model 5R61, *5KW, 115/230 volt AC. Remote start.*



KOHLER CO. Established 1873 KOHLER, WIS.

KOHLER OF KOHLER

Enameled Iron and Vitreous China Plumbing Fixtures • Brass Fittings
Electric Plants • Air-cooled Engines • Precision Controls

The Original
MIDWESTERN
STRIPED SAFETY COAT

- Brilliant Yellow Rubber Stripes!
- Maximum Visibility!
- Maximum Durability!
- Exclusive Safety Features!

See your Midwestern dealer or WRITE for Free Catalog and fabric samples.

MIDWESTERN SAFETY MFG. CO.

Mackinaw Illinois

Connecticut Training

AN AIRCRAFT fire and rescue course will be added to the training program of the Connecticut State Fire College to be held June 8–12 at the New Haven Fire Department's drill grounds.

A public demonstration of crash fire fighting will be presented by graduates of the new course at 2:30 P.M. Saturday, June 13, at Bradley Field, Windsor Locks, Connecticut. Airport crash and nurse trucks will be used to roll in on an extensive gasoline spill fire around a jet plane. The student-firemen will clean out a path through the flames to rescue a dummy from the plane and then will complete extinguishment of the fire.

The crash fire course is limited to experienced firemen who are now attached to airport fire crews or who expect to enter that phase of fire-fighting.

These men will spend a day doing crash fire fighting and rescue work at Bradley Field. The other four days will be spent at the New Haven drill grounds, where all the other fire college courses will be conducted. At New Haven, they will use both water fog and foam on oil fires, learn the theory and technique of operating crash trucks and attend lectures on the chemistry of fire.

Further information on the crash fire and other courses may be obtained from Roy W. Adams, Director of Vocational Training Field Service, State Department of Education, 490 Capitol Avenue, Hartford, Connecticut.

Tips on Effective Fire Prevention Programs

DURING the 63rd NFPA Annual Meeting in Atlantic City, New Jersey, June 1–5, a program item of special interest to the fire service will be the session on fire prevention education.

"Organizing Your Community for Fire Safety Education" will be discussed by two panels of experts. The first section will feature both general information and actual case histories of successful community educational campaigns. The second part is to deal specifically with fire safety education, with speakers covering the community importance of this effort, case histories of successful campaigns, and tips on how to get the job done.

Among the participants on the panels will be John B. Fisher of Joyce and Fisher Associates; Paul Cullen, director of the education department of Aetna Life Affiliated Companies; Reginald Beauchamp, director of special events for the Philadelphia *Bulletin;* J. R. DeHaven, Employers Mutual Fire Insurance Company, Wausau, Wisconsin, and Robert Nathans, President of Parsons and Nathans, Inc. Each panel member has had professional experience in public educational campaigns, including fire safety education.

The program is scheduled for Thursday afternoon, June 4, at the Hotel Dennis which, with the Hotel Shelburne, will be the Annual Meeting headquarters.

The panel discussion will be preceded by a demonstration of a junior fire department in action, conducted by the Sparky Fire Department of Middletown, Pennsylvania.

Uniformed fire fighters, fire prevention bureau personnel and all others interested in fire safety activities are invited to attend.

Volunteers!

"E" siren

"V" siren

Jr. Beacon Ray

FireBall

Beat traffic congestion with modern methods

Your fire truck at the scene, is of little value without *manpower!*

Smart departments equip the cars of their volunteers with signals to improve response.

A *FEDERAL* siren and light can get *you there quicker!* They can do the same for other members.

Write for Catalog #300. Read about *FEDERAL* "O", "V", and "E" sirens; *FEDERAL* Flashball, FireBall and Jr. Beacon Ray lights; all designed to get the Volunteer to the scene *faster!*

FEDERAL SIGN and SIGNAL Corporation 8717 S. State St., Chicago 19, Ill.

Next to your pumper . . .
the New

HALE FZZ or FZ

is the Most Useful Emergency Fire Fighter You Can Own!

The new lightweight FZZ and FZ Hale Portable fire-fighting units are a must for fire fighters everywhere. Dependable, Versatile and Rugged, each weighs only 148 lbs.; is conveniently portable by two men.

They can be easily mounted or carried on any type of apparatus or truck for fighting fires while in motion. Both are extremely valuable for pumping from inaccessible water source into major pumper, for fighting fires direct, and for performing dozens of pumping chores that save wear and tear on the Major Pumper.

Type FZZ — Packs a PRESSURE Punch

- 2½" Suction and 1½" Discharge.
- Best for Fire Companies that frequently pump through a 2½" line over 350 ft. long.
- Supplies from Draft (on a 10-ft. lift) 60 U.S. GPM at 90 P.S.I. with ease.

Type FZ — Packs a VOLUME Punch

- 3" Suction and 2½" Discharge.
- Best for Fire Companies that frequently pump through a 2½" line not over 350 ft. long.
- Supplies from Draft (on a 10-ft. lift) 85 U.S. GPM at 60 P.S.I. with ease.

Please send information immediately on your new, improved FZZ and FZ portable fire pumping units. Dept. F.

Name_____

Address_____

Town_____ State_____

HALE FIRE PUMP CO.
Conshohocken, Pa.

Letter to FIREMEN

GENTLEMEN:

I am a member of the Empire Hook and Ladder Fire Company, a Volunteer company of the Carlisle Fire Department, and our 75-foot aerial ladder has been used several times to remove television antennas that have fallen across high-voltage electric power lines. I would appreciate any literature or pamphlets regarding safety rules to be followed and what equipment is to be used to protect our equipment and personnel from electric shock and other injuries.

Sincerely,
CLAIR S. TRITT, Secretary
Empire Hook and Ladder Company

DEAR MR. TRITT:

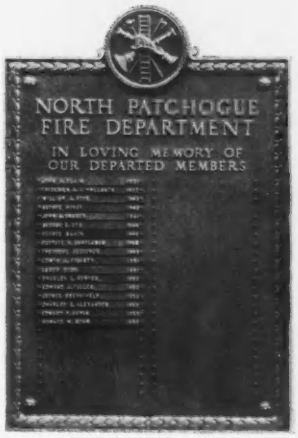
There are two items of utmost importance in working around electric power lines. Even if the power has presumably been shut off, there may still be a potential in the lines. If at all possible, the aerial ladder should be kept clear of the line and the utility company should do all the electrical work. The ladder truck should be properly grounded but often fire fighters are not capable of determining an adequate ground.

No person should be allowed to touch a ladder truck when it is in contact with electric wires as they may make a better ground than the vehicle and thus be electrocuted. People on the ladder truck are relatively safe as they do not provide a path to ground unless they actually touch the conductor. They would be in the same situation as birds sitting on a high tension wire. However, if a person touches the truck and ground at the same time, they would be in extreme danger, even if wearing rubber boots because they do not provide adequate electric protection. If a person wants to get off the ladder truck, he should jump off. It is extremely difficult to obtain adequate ground through solid pavement, and that is why the NFPA Committee on Fire Service Training suggests a positive ground to a suitable conductor.

Most fire departments prohibit their members from doing electrical work. They merely protect exposed property against fire and call the utility company responsible for the electric service.

Very truly yours,
WARREN Y. KIMBALL,
Manager, Fire Service Department

Why not order subscriptions to
FIREMEN
for all the men in your department?



A permanent record of honor and service in enduring bronze

There is no finer way . . . to pay permanent honor . . . than an everlasting record in a dignified International Bronze plaque.

Write today for our beautifully illustrated Brochure A . . . showing hundreds of original ideas for reasonably priced solid bronze plaques, honor rolls, memorials, awards, testimonials, commemorative tablets. For trophy, medal, cup ideas, write for Brochure B. Dept. 67.

INTERNATIONAL BRONZE TABLET CO., INC.
150 West 22nd St., New York 11, N. Y.

save your voice

with the
Falcon Chief
and save money, too!

speak as you normally would—be clearly heard and understood up to ½-mile away!

Unique transistorized power megaphone—an instrument you will be proud to own. Gives up to 6,000 two-second amplified messages from standard replaceable battery. Light (3¼ lbs.)—easy to handle and use. Attractive red and gray polyethylene—built for abuse. Attractively priced for you, too!

WRITE for particulars — and free, informative "Sounds for Safety" folder! DEPT. FN

Falcon® ALARM CO., INC.
SUMMIT, NEW JERSEY

this month's

EQUIPMENT NEWS

Invalid Markers

Do the helpless in your community know that you can find them in case of emergency? Quick identification of the homes and bedrooms of invalids in your community is now possible with luminous invalid decals in bright red, white and black. Manufacturer recommends 4-in. size "I" marker on front, side and rear doors and 2½-in. size on windows and hall doors of invalid's room. Get the complete story today from *FD Products*, Dept. F-1, 514 West Englewood Avenue, Teaneck, New Jersey.

●

Useful to both municipal and industrial fire departments is the new 80-page, four-color equipment catalog just released by *Russell Fire Equipment*, division of *Russell Uniform Company*, 192 Lexington Avenue, New York 16, New York. . . . Latest in more than a dozen emergency bodies designed by *Morysville Body Works, Inc.*, 813 South Reading Avenue, Boyertown, Pennsylvania, is the F-106 Rescue Unit, compartmented and fitted to carry a variety of fire fighting, first aid and life saving equipment. Ask manufacturer for details on the F-106 and their other body designs. . . . *Hale Fire Pump Company*, Conshohocken, Pennsylvania, announces the election of E. J. Wendell, one of the founders of the company in 1914, as Chairman of the Board and J. S. Bennett as President.

●

All *General Electric* two-way radio manufacturing and sales is now centered in a new factory in Lynchburg, Virginia. . . . *Stephenson Corporation*, Red Bank, New York has appointed Timothy J. O'Shea sales manager. . . . "The Story of Your Badge" is a valuable 16-page booklet available free from *V. H. Blackinton & Company, Inc.*, Attleboro Falls, Massachusetts. . . . Would you spend a ten-dollar bill to prevent vandalism and theft of your car? For information on "Police Auto Alarm," write to *Gregory Sales Company*, 316 Marion Building, Cleveland 13, Ohio. . . . A 2500 watt, 157 pound electric generator, Model M-2500-P is being marketed by *Pioneer Gen-E-Motor Corporation*, 5841–49 West Dickens Avenue, Chicago 39, Illinois. . . . Barney D. Wilmoth has been appointed field engineer for *Clifford D. Hannay & Son, Inc.*, Westerlo, New York. . . . Fire department Maltese cross emblem decals, available in small units to fit any budget for small communities, are a specialty of *Ben Troupp*, "The Decal Man," 1044 Winthrop Street, Brooklyn 12, New York.

●

A basic tool for every fire fighter, invented by a Waukegan fireman, is the 24-ounce, 12½-in. Burns tool. Write to *Burns Tool Company*, 1526 Lucia Avenue, Waukegan, Illinois. . . . Full power at either 115 volts or 230 volts from one outlet is a feature of the new portable engine-generator in 2,500 watt and 3,500 watt capacities announced by *Wincharger Corporation*, Sioux City, Iowa. . . . *Ansul Chemical Company*, Marinette, Wisconsin, offers a new six-page folder titled "A Guide to Fire Extinguishers."

American LaFrance Corporation, Elmira, New York, has just published a new, six-page, four-color folder illustrating "Equipment for 1st Minute Fire Control." It is available at the above address.

The company also announces the appointments of Werner P. Barwinkel (left) to sales manager, Fire Protection Equipment Division, and Fred B. Owen (right) to manager, Consumer Product Division, handling the marketing of Protexall home and marine fire extinguishers.

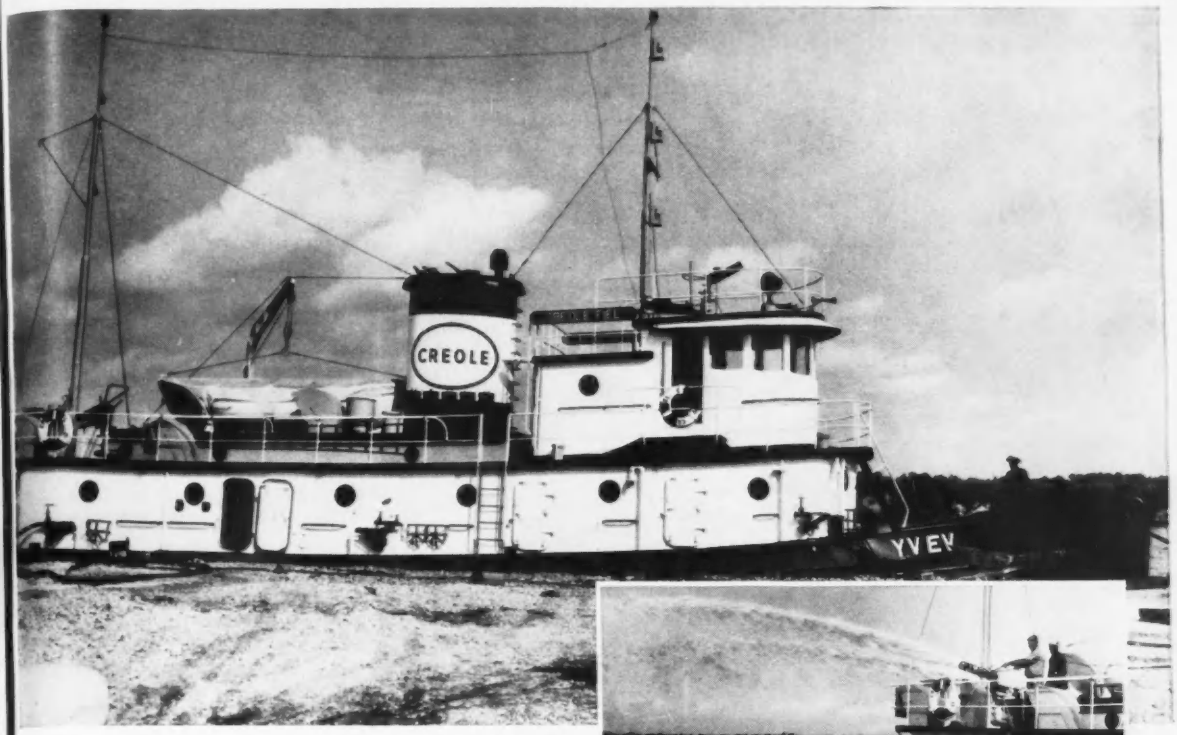
INDEX TO ADVERTISERS

	Page
American Fire Apparatus Company	2
Bar-Way Manufacturing Company	29
Cairns & Brother, Inc.	22
Circul-Air Corporation	24
W. S. Darley & Company	18
Falcon Alarm Company, Inc.	33
FD Products	21
Federal Sign & Signal Corporation	32
Fyrepel Products, Inc.	26
Fyr-Fyter Company	6
Hale Fire Pump Company	33
Hamburg, New York	22
Clifford B. Hannay & Sons, Inc.	30
Hook-Fast Specialties, Inc.	23
International Bronze Tablet Company, Inc.	33
Kohler Company	31
Mack Trucks, Inc.	4, 5
Midwestern Safety Manufacturing Company	32
Morysville Body Works, Inc.	25
D. W. Onan & Sons, Inc.	23
Powhatan Brass & Iron Works	3
Roberts Company	20
Rockwood Sprinkler Company	35
D. B. Smith & Company	20
Super Vacuum Manufacturing Company	21
Thermoid Division, H. K Porter Company	19
Waterous Company	17

BUYING NEW EQUIPMENT?

Consider the products advertised in this issue.

Item	Page
Apparatus, motor fire	4, 5, 27
Apparatus, pumping	22, 26
Apparatus, rescue	25
Business opportunities, jewelry	23
Clothing, protective	32
Electric plants	23, 28
Equipment, fire department	29
Extinguishing equipment	35
Helmets	22
Hose	19
Hose couplings	3, 31
Hose dryers, electric	24
Hose racks	24
Hose reels	30
Hose washers	24
Invalid Markers	21
Megaphones	33
Plaques, trophies, cups	33
Protective equipment	27
Pumps	17
Pumps, lever type	20
Pumps, portable	33
Pumps, sliding	20
Sirens	32
Sparky promotional material	20
Ventilation units	21
Warning lights	32



One of four dual-purpose tugboats operated by the Creole Oil Company in the Lake Maracaibo area, Venezuela. Larger photo shows some of the Rockwood fire-fighting equipment, including a turret nozzle above the pilot house, partial view of two turret nozzles on the after part of the boat deck, and three of six hose stations on the main deck. Smaller photo shows the two turret nozzles on the boat deck throwing a solid stream of Rockwood FOAM.

Tugboat doubles as a powerful fireboat

Rockwood FOAM system adds valuable protection against fire damage, afloat or ashore

Besides their daily value in towing jobs, Creole Oil Company tugboats have considerable emergency value. With their Rockwood automatic FOAM systems they can fight the toughest fires with the most modern equipment.

Each vessel carries 1500 gallons of Double-Strength FOAM, from which 400,000 gallons of expanded FOAM can be generated. Using expanded FOAM at maximum output, the automatic system can operate for 30 minutes.

The three Rockwood turret nozzles, one on the pilot house and two on the after boat deck, are under direct manual control. The three hose stations shown are duplicated on the other side of the vessel. Rockwood discharge equipment includes four 1½" SG-60 nozzles with FF extension units, four 2½" FFF nozzles and two 10′ and 12′ low-velocity extension applicators.

Rockwood automatic controls enable discharge of FOAM or water, separately or in desired proportions, from all turrets and stations. With controls set . . . starting the pumps for FOAM and water is all that's necessary to assure fast, trouble-free operation and to free all hands for other fire-fighting duties. In addition, the Double-Strength FOAM aboard can be quickly fed into on-shore piping or hose systems, for fighting fires too far inland from the tugboat.

Protective advantages like these are typical of Rockwood systems and products on ships, land vehicles or stations. Tested and listed by Underwriters' Laboratories, Inc. Send coupon for details.

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

Distributors in all principal cities

ROCKWOOD

ROCKWOOD SPRINKLER COMPANY
Portable Fire Protection Division
1231 Harlow Street
Worcester 5, Massachusetts

Please send me details on Balanced Pressure Proportioning System and Double-Strength FOAM liquid.

Name .....

Title .....

Company .....

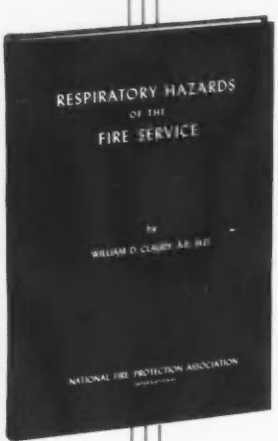
Street .....

City ..... *Zone* .... *State* .....

FIREMEN
60 BATTERYMARCH ST.
BOSTON 10, MASS., U. S. A.

POSTMASTER: If undeliverable FOR ANY REASON, notify sender, stating reason, on Form 3547.

A Fireman's Book — in Firemen's Words . . .



"RESPIRATORY HAZARDS of the FIRE SERVICE"

A valuable and timely book by Dr. William D. Claudy, member, Board of Police and Fire Surgeons, Washington, D. C., and surgeon of the Falls Church Volunteer Fire Department and the Arlington County Fire Department in Virginia.

Dr. Claudy has been a frequent contributor to NFPA FIREMEN magazine, and many of his excellent articles on first aid, artificial respiration, treatment of burns and handling contagious diseases have been reprinted in response to requests from readers. In this book Dr. Claudy describes in firemen's language the respiratory hazards that confront fire fighters. About one-third of the book is devoted to the construction, use and maintenance of canister and self-contained masks. Other sections deal with the all-important anatomic and physiologic problems due to smoke inhalation and lack of oxygen, toxic gases, fire fighting procedures and numerous other facts that are extremely important to a fire fighter's well-being.

To get a copy promptly for yourself or your fire station library use the order blank at lower left.

Price **$4.25** per copy

Cloth bound 5¾ by 8⅝ in.

140 pages illustrated

ORDER FORM FB 5-9

NATIONAL FIRE PROTECTION ASSOCIATION
60 Batterymarch Street
Boston 10, Massachusetts

Gentlemen:

Please send me.....copies of "Respiratory Hazards of the Fire Service" at $4.25 per copy.

Name .....

Address .....

City..... **State** .....

☐ Check enclosed. ☐ Please send bill.

Contents

General Principles Governing Fires and Ventilation
The Universal Filter or Canister Mask
The Self-Contained Demand Mask
Oxygen Generating (Rebreathing) Self-Contained Mask — the "Chemox"
Self-Contained Oxygen Rebreathing Apparatus (Lung Governed)
Anatomic and Physiologic Aspects of Respiration
Artificial Respiration
Maintenance and Cylinder Recharging
Measurements
Toxic Gases — Common Hazards
Other Toxic Gases Resulting from the Burning of Ordinary Combustibles
Related Factors Affecting Performance
Toxic Gases Encountered as the Result of Fire Fighting and Extinguishment
Toxic Gases Not Usually Encountered in Fire Fighting, Including Refrigerants
Things to Come
Bibliography